

Perceptual Potential Through Skin:

A Theater for Milwaukee, WI

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a bachelor of architecture thesis by **Chris Vant Hoff**

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Perceptual Potential Through Skin: A Theater for Milwaukee, WI

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1 INTRODUCTION

Throughout the history of architecture the primary way of influencing the external perception of a building was through the manipulations and form of the exterior load bearing wall. Many of the timeless examples of architecture throughout history presented themselves to the user with qualities that have to some degree been lost in modern architecture, namely a richer complexity and a resulting degree of mystery. These qualities can be seen in architecture from the Egyptian pyramids (figure 1.1) to the Ronchamp chapel (figure 1.2) by Le Corbusier. Our values of what a building is have changed. A skin, now autonomous from the structure, is the primary vehicle for influencing external perception of a building in contemporary architecture. Can the skin be designed and treated in such a way that it conveys those lost qualities (of rich complexity and enticing mystery) while remaining true to the tectonics of contemporary architecture.



figure 1.1

As perceived from the outside, a building has the potential to inspire curiosity, a quality achieved through mystery and obfuscation (the activity of obscuring people's understanding). The allure of what we can almost see but can't quite touch or understand is much greater than that which is presented to us with immediate clarity. Buildings cannot be read like books, therefore in and of themselves they cannot tell a story but can instead arouse the senses in order to be titillating and seducing. How can the contemporary architecture of the exterior surface engage these qualities?

In an attempt to revive qualities lost in architecture over time, can exploration into the visual perception of a building through the skin provide the opportunity to achieve visual titillation and to make a building alluring? The architectural language that generates such perceptions is the consideration of materiality, texture, color, translucency, reflectivity, and parallax (the apparent difference of position, of an object, as seen from two different points of view).

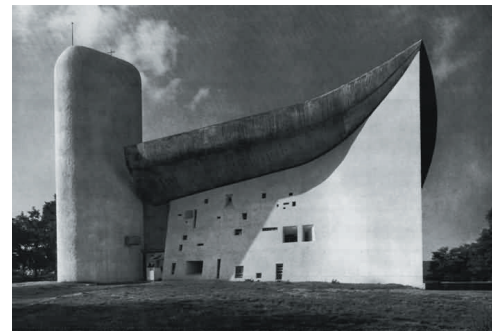


figure 1.2

The vehicle for this thesis exploration is a stage performance theater for Milwaukee, Wisconsin. Theaters are important public cultural institutions. The public's perception of them is important. In addition to their stature as public institutions, theaters in general invite discourse on issues of mystery and communication. Additionally, through their functional requirements they force the designer to consider a large amount of exterior surface area, conceived of as a skin, the focus of this thesis.

2 BACKGROUND



figure 2.1



figure 2.2

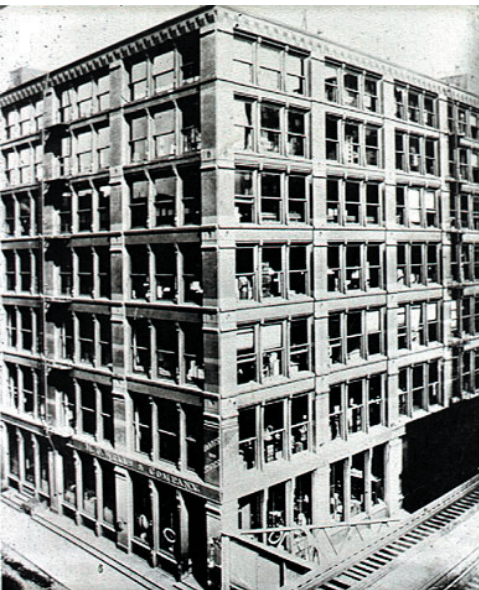


figure 2.3

Questions about monumentality and permanence are often associated with architecture since the modern movement. Irene Scalbert writes in *Reading MVRDV*, 'Until recently, modernists like Le Corbusier could still define architecture as 'the magnificent play of volumes under the light'. Today such a confident claim to beauty seems fey and contrived. It appears to belong to the hapless world of architectural tradition which can no longer be sustained. Indeed the evidence on the ground suggests that the traditional idea of architecture, defined by its ubiquity and permanence, is threatened with extinction (Patteeuw 23).

We are in an era where our prominent architecture must express itself differently.

Monumental and permanent architecture has not been effectively achieved since the middle of the last century with Louis Kahn's national assembly building in Dacca (figure 2.1) and Le Corbusier's complex at Chandigarh. The monumental buildings of the past cannot be perceived as a collection of functions with an envelope dividing the inside from the outside or public from private. It is easier to see these monumentals as monolithic solid masses, symbols of the greatness they were intended to express. The solid materials that they were constructed of did not explore the idea of a skin as a primary device for expression.

We have had a progressive substitution of thick, heavy, opaque walls with openings for thin, lightweight, and transparent [translucent] skins (Leatherbarrow 79). The skin, as autonomous element, implies a distinction between the structural and nonstructural elements of the building, between the frame and cladding. Architecture at the turn of the century in Chicago exemplifies the skin's self-sufficiency. This change is illustrated in two buildings both built in Chicago in 1889. Adler and Sullivan's Auditorium building (figure 2.2) was constructed with load bearing walls while William Le Baron Jenney's First Leiter Building (figure 2.3) has floors supported by iron columns behind the exterior wall (while it is not a genuine structural frame it is significant in that it made no attempt to represent a massive load bearing wall) (Leatherbarrow 34). Before this distinction between cladding and frame there were limits in design. The openings in a building were for ventilation, light, and views outside. Their limits determined the tectonic qualities of the exterior surface. That changed with the advent of the structural frame. Windows become entire walls, not just openings. The exterior surface was thus redefined.

Glazing became an integral part of the enclosing surface of the building rather than a material used to cover a hole in a massive wall. These changes came about with new technologies and the embrace of industrialization and its products. Exterior surfaces of the modern movement were thus characterized by lightweight, mass produced pieces and parts, separate from the structural frame. The form of buildings of the modern architecture movement became the naked function and bones of the structure becoming the final form. A certain degree of poetics was lost in the modern architecture movement because of architects poorly copying the great works of modern masters such as Gordon Bunshaft (figure 2.4), Mies van de Rohe and early Phillip Johnson. These copies make up some of the worst buildings in our cities (figure 2.5), their banal qualities foiling the opportunity for stimulating perceptions. The result was often vast boring expanses of glass or mute surfaces of concrete.

In our contemporary architecture, our values of what a building is has changed, consequently the initial perception (shaped by the exterior) has drastically changed. Because of these issues with solidity, permanence, and technology, the skin has a much more important role in current architectural discourse and becomes the primary vehicle for influencing outward perceptions, especially in our most prominent buildings that represent our culture's best.



figure 2.4



figure 2.5



figure 2.6



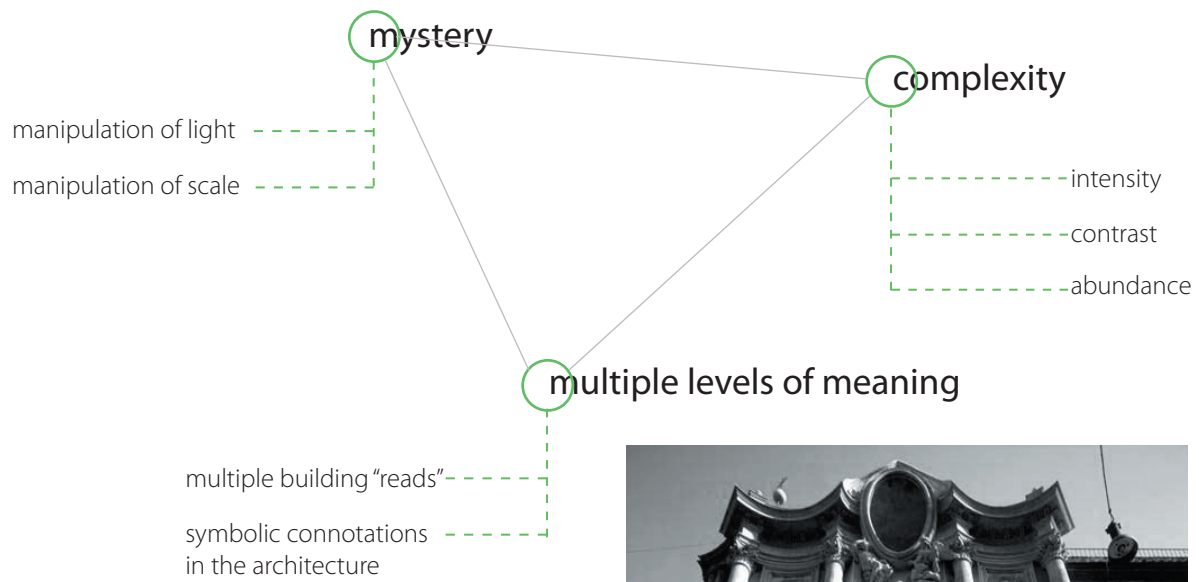
figure 2.7

The transition of the exterior surfaces of our buildings has evolved from classical fronts with a rich complexity of detail and scale, to 19th century overindulgence with historical facades, to a modernist reaction with pure, but mute surfaces made usually with all glass or concrete. According to Aaron Betsky in *Architecture*,
 unadulterated surfaces of transparency or mute solidity do not work with the perceived complexity of contemporary economics, social relations, science, and politics (Betsky 92).

Essentially there must be an enticing and mysterious quality to our current architecture. How can this be achieved while still designing a quality building as a whole that still embraces contemporary technology? The principal opportunity for this enticement to occur is through the skin of the building. Visual titillation is beginning to be achieved in contemporary architecture through a number of surface techniques ranging from weaving, coloration (UN Studio, Galleria Hall, figure 2.6), perforation, wrinkling (Herzog & de Meuron, Walker Art Center, figure 2.7), and translucency.

Before modernism's arrival significant works of architecture more often than not possessed engaging qualities such as mystery, complexity, and multiple levels of meaning. All architecture need not express a quality such as mystery, but it is a quality that is a part of some of history's most timeless works of architecture, ranging from the pyramids of Egypt to Baroque churches (figure 2.8) to the Ronchamp chapel by Le Corbusier. The mysterious qualities are, at their most basic level, attained by intentional and focused manipulation of light and scale. It is also attained through careful material selection, often manipulating its texture, and also through the thoughtful use of a range of translucencies, ranging from opaque to transparent. How can we achieve the quality of mystery through the skin in contemporary architecture, coming out of a modern movement where, because of the paradigm shift, those qualities were essentially eliminated?

derivation of specific qualities relative to prominent architecture throughout history



3 RESEARCH



figure 3.1



figure 3.2



figure 3.3

For discussing architecture where these issues come to the forefront, “skin” will be identified as a non-structural tectonic element that closely adheres to the outer layer of a building [typically the structure], separating inside from outside. The term “surface” will also refer to this. The term “surface” will be used when the topic implies a greater emphasis on materials and texture. Contemporary applications of the skin of a building can be broken down into two categories in terms of composition. The way that skin is treated has an affect on its image and the way the building is perceived. Obviously scale has a major influence on those factors but the heart of this discussion is the surface, independent of the scale.

Today, the skin often acts as a homogeneous wrapper with a consistent, even monolithic external appearance. In this architecture the power is in the expressive potential of the architectonic configurations as a primary gesture. The skin acts as boundary for what is probably a multitude of very different programmatic functions inside. Rem Koolhaas’ Seattle Public Library (figure 3.1) and Herzog and de Meuron’s de Young Museum in San Francisco (figure 3.2) are good examples of this type of skin composition.

In addition, the building skin also has the potential to instead express the diversity of programmatic functions inside. Material changes on the exterior and dissimilar expressions based on orientation can be an indication of functional differentiation inside, a sort of skin follows function idea. This is evident in MVRDV’s Silodam project (figure 3.3) in which the skin composition relates to different interior neighborhood zones. Radical volumetric differentiation within a single building can further that differentiation (falling back on the ‘form follows function’ tenet of the modernists). Walter Gropius’ Bauhaus (figure 3.4) shows this skin’s expression, delineation, and form differentiation are based on function. Along these lines, skins that differentiate according to responses to contextual adjacencies can fit into buildings of this type. There are variations of these two opportunities for building surfaces, but assigning just these two categories allows for a broad enough spectrum for a coherent discussion.

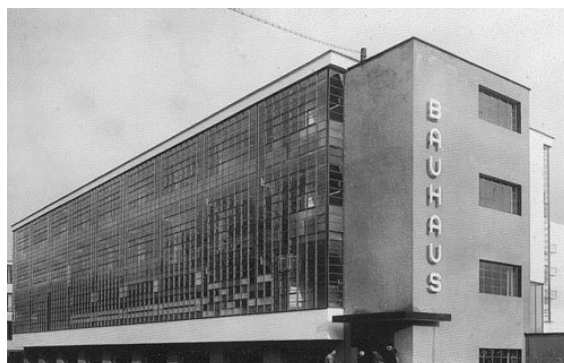


figure 3.4

In contemporary architecture the architect's intentions for the skin are not singular. With the recent popularity of sustainability, a trend is emerging of designing environment skins. Double skins have become increasingly common. Contemporary glass high rises are utilizing double skins for sun shading, passive cooling, and passive heating. Renzo Piano's Daimler Benz Headquarters at Potsdamer Platz (figure 3.5) in Berlin, Germany utilizes an environmental surface with a double skin façade.

Another role concealment. A good example of this is Herzog & de Meuron's railroad signal box (figure 3.6) in Basel, Switzerland. This copper skin of this building conceals what is essentially a large electrical box. Hiding something with the skin can be useful for utility things such as water treatment plants, electrical boxes, chiller stations, among others.

Found or recycled objects have a potential for the skin. This could also fall into the sustainability genre. Samuel Mockbee's Rural Studio designed and built a house in Alabama (figure 3.7) in which carpet tiles became the exterior surface material which acted as a physical, thermal, and psychological barrier. Although the carpet tile wall was load bearing, and not a skin, found objects have the same kind of potential for being incorporated in the skin.

The focus of this study does not deal with concealing utility objects, focusing on the environmental aspects of skins, or utilizing found materials in the skin. Environmental responsibility should be inherent in an architect's mindset. The interest of this study lies in the imaginative perceptual potential for the materials of the surface and how it can affect a building, evoking mystery, complexity, obfuscation, and at another level, a degree of understanding.



figure 3.5



figure 3.6



figure 3.7



figure 3.8



figure 3.9



figure 3.10

The importance in how a person perceives a building through the skin is important not only for the building itself but for the way it is a part of the city as well. The skin of a building is not just the boundary between public and private [access, ownership, and social domains] but a layer of something that makes the building an object in a larger spectrum, the context.

With a discussion of something as tangible and visible as the exterior surface of architecture, materials and their qualities enter into the conversation. Material selection is the foremost medium for achieving intended qualities. Materiality is more than a technical property of architecture, it is, "a precondition that promotes ideas, creativity, and pleasure in architecture, and it guides us to the loftiest aspirations of theory" (Mori 9). The authentic use of materials, and more so their authentic use, enhance their material identity. This pursuit is important in contemporary architecture (i.e. work of Herzog and de Meuron). The way the skin materials are manipulated has a major impact in how the building will be perceived. Typical materials in architecture can be used in a truthful way (inherent of their properties), a new way, or materials not typical to architecture can be employed.

Much of our perceptual energies go into the bombardment of electronic media that we are exposed to (figure 3.8). How can more of our perceptual energies go into our architecture, which has materials that can be seen, touched, heard, and even smelled? A building doesn't communicate, it cannot be read like a book. A building does not have an index, notes, or captions like a picture in a gallery. Architecture is architecture. Architecture, such as the work of Herzog & de Meuron has an immediate visceral impact on the visitor. This visceral impact is most possible through the design of the skin (Massimiliano 1).

Textural manipulation of the surface is another way of achieving a seductive quality. Materials are made into rich, dynamic textural surface elements through casting, weaving, lamination, combination, wrinkling, perforating, and undulating. Architects like Herzog & de Meuron create a fine embroidery in the treatment of some of their building surfaces. Their imagery of the Eberswalde Library (figure 3.9) and the textural quality of the Phaffenholz Sports Center (figure 3) expresses this best. They have the ability to take the most neutral and anonymous forms and transform them into something extraordinary through the manipulation of surface of material.

Another vehicle for making the surface of architecture alluring is through the use of color. Historically color has been incorporated in architecture from Greek temples (figure 3.10) to Indian palaces (though what is seen now is the natural color in their ruins). Using color can confirm natural qualities inherent of a material but it can also eliminate the connection between the object and its material. Today, color in the skin can be declared through transparency, translucency, artificial light, glass, and plastics. Color is an element that gives shape to the interface between space and surface (Koolhaas et. al.)

A world of completely natural colored architecture can look extremely drab. On the other hand the world could be muddled with artificiality, full of superficially colored materials where their identities are lost. Materials could be left the way they are and achieve a well-balanced architectural world with forms being their identifying factor (Fuchs 11). This scenario would lack color, luminousness, and seductiveness, qualities that our current architecture should strive for.

There are two ways in which things are colored. First, coloring something diverse and varied as to give it uniformity, give it greater perceived size and collectivity. Second, color identical elements differently so identical things become individuals, a group weakening in order to give preference to perceiving individual elements (Fuchs 12). The most genuine and effective use of color is when coloring a material to change perception or mood but not altering the authenticity of its natural texture and hue.

The visual impact of a building won't be complete when considered from the perspective of surface alone. Similarly the surface will not be complete or effective considered from the perspective of color alone. The importance of color in regard to the surface of architecture is that color is capable of altering perceptions and moods more than anything else.

There are other architectural means for achieving certain desired qualities (form, parti) but the skin is the ideal place to start. A skin is typically conceived of as something wrapping the truthful functional necessities of the building (cladding over structure). Cladding or wrapping is something that both potentially conceals and reveals (adding a level of mystery) in that it hides the structural realism but as a complete set of parts it represents the larger truth – the perception of the building itself (Wrapped Reichstag, Christo, figure 3.11). Therefore by just applying a skin prior to design concepts it is already achieving some level of obfuscating while at the same time revealing the true tectonics of the building.



figure 3.11



figure 3.12

4 PRECEDENT STUDIES

The precedent studies fell into two types. First of all, some precedents were studied because they were contemporary examples of building which utilize a skin in an original and interesting way. Other precedents were examples of architecture throughout history which possess seductive qualities such as mystery, complexity, and multiple levels of meaning.

figure 4.1



figure 4.2

EBERSWALDE LIBRARY

Herzog & de Meuron's Eberswalde Technical School Library is essentially a three story box building containing a library of forestry and applied sciences. The façade surface is composed of flush bands of pre-fabricated concrete panels and glass etched with the newspaper clipping photographs collected by the artist Thomas Ruff. The glass bands correspond to the clerestory that brings light deep into the interior. There are intermittent clear glazed apertures that relate to individual workplaces and provide views as well as spatial orientation. Each exterior band is imprinted with images, the glass with traditional etching techniques and the concrete with a specialized screen printing technique. The imprints wrapping the facades unifies the surface. The viewers perception is an annulment between the concrete and glass. At night the image of the building changes, glowing only from the glass bandings. The building fluctuates between surface and volume, history and decoration, outside and inside, high and low, and closure and perforation.

The dialectical relationship between interiors and the surface of the building is to a lesser degree than in MVRDV's Silodam project. The relationship is hardly more than windows organized with the individual studying spaces. The importance lies in what the surface is conceptually conveying. Repeating historically important images on the surface of the building not only makes the surface complex but translates the function of a library into abstract form, the compilation and dissemination of information, and the representation of contemporary culture through images. As a result of Herzog & de Meuron's treatment of the surface the building achieves an alluring obfuscation of the building while at the same time conveying a building of contemporary culture through the images.

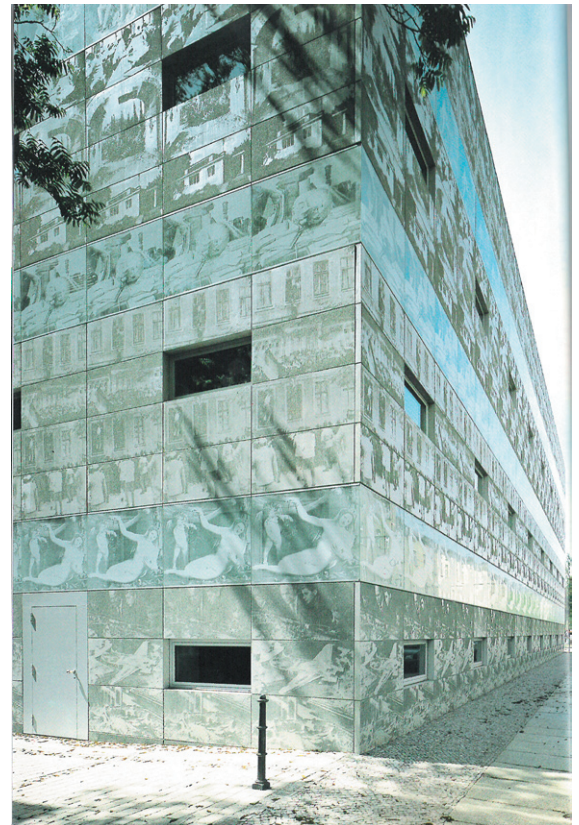


figure 4.3

SILODAM HOUSING



figure 4.4

The Silodam housing block in Amsterdam by MVRDV of Rotterdam borrows freely from, but owes very little to, known housing types. The range of dwellings the block contains is vast as is the complexity of its circulation. The interior layout fits together like a jigsaw puzzle. The cladding is an intentional clash of materials as opposed to a careful composition and is different for each dwelling type, expressing the diversity inside. The architect, through the design, attempted to further the possibility of neighborhoods forming within the building. Each variation in the façade represents a neighborhood of four to eight apartments. The colors of the skin translates also to the interior where the hallways, doors, and mats are the same color. The variation on the skin also reflects the demand among urban dwellers for individuality.

The simplicity of the overall form replicates the adjacent silos on the water. The complex and diverse interior is housed in this simple form, therefore the buildings surface becomes the identifying factor for the building. The buildings appearance is wherein lies its innovativeness. Some say that the building looks like an assemblage of stacked shipping containers. It seems as though the architect's ideas for the surface transcended a simple replication of a maritime image. Whether intentional or not, it connects it to its site because of the recollection of such a perceived maritime image.



figure 4.5



figure 4.6



figure 4.7



figure 4.8

BLUR BUILDING

In the media pavilion for the 2002 Swiss Expo by Diller + Scofidio the definition of the surface of a building is dissolved. The building was called the “blur building” because it is essentially perceived as a blur on the water. Diller + Scofidio achieved the ultimate way to make a building weightless or floating. The building is ultimately without a function. It only serves as an immediate experience, traveling down a bridge, ascending into the fog, drinking various types of water at the water bar, then leaving.

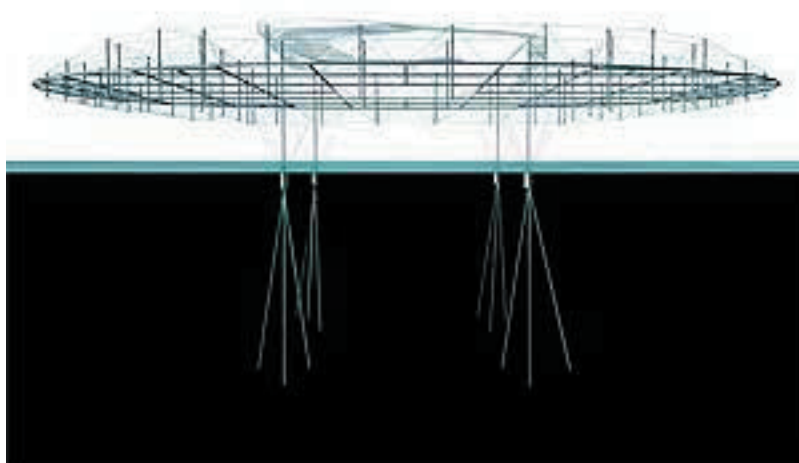


figure 4.9

The fog that creates its identity as a building is created from 13,000 fog nozzles shooting mist from the lake into the air. The cloud defines the building, or lack thereof. Within the fog there is a skeletal structure of steel which is exposed at night when the water pumps shut off. It appears as an unfinished building waiting for a wrapper. The next day the inhabitable cloud reforms the building in its entirety is regenerated. It is described by Diller + Scofidio as “featureless, depthless, scaleless, spaceless, massless, surfaceless, and contextless; ultimately nonspectacle.” They have pushed our contemporary values of what a building is beyond our previous perceptions.



figure 4.10

RONCHAMP CHAPEL



figure 4.11



figure 4.12

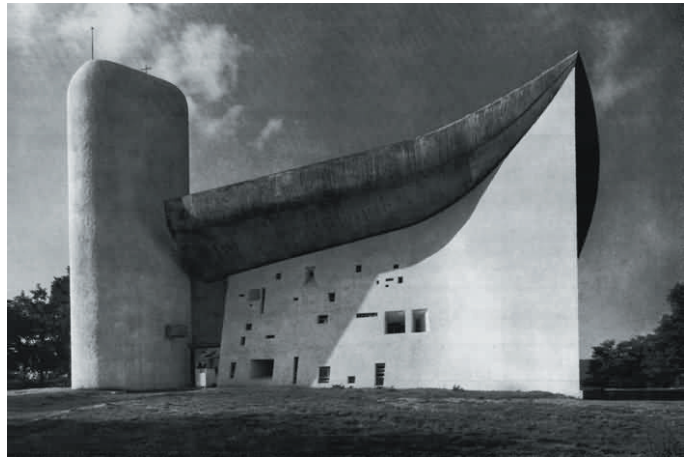


figure 4.13

Although he was part of the modern movement, Le Corbusier had never excluded symbolism and references to tradition in his built work. Le Corbusier's chapel at Ronchamp was a departure from the prescribed formulas of modern architecture. It was somewhat of a saving grace from the downfalls of the international style, returning to historical values, demonstrated in Gothic and Baroque churches. In Ronchamp Le Corbusier utilized fusions and separations of concave and convex shapes to generate spatial mystery, unequalled in the modern age. The perception of mystery in this sacred space is enhanced by the seemingly random sizing and placing of the windows on the façade which makes the scale slightly ambiguous. The cave-like interior, as a result, has mystical qualities as the light comes in through the different sized apertures and additionally from the towers and through the thin reveal at the roofline. The form actually arouses curiosity in the user by perceiving a seemingly heavy roof separated from the thick walls below (although thin steel columns at various places structurally support the roof). Light is also intentionally being manipulated by using heavily textured wall surfaces which as a result involve intricate plays of light. Clarity is also avoided by all at once reinforcing the thickness of the wall as well as their planarity. Walls are perceived as thick and massive and also thin and light, all while avoiding symmetry and predictability. The Ronchamp chapel is complex in its contrasting elements and its intense manipulation with light and texture all while being restrained enough for the chapel to remain a coherent whole.



GOTHIC CHURCHES



figure 4.14

Gothic cathedrals are mystifying in both their meaning and function, as is the case with most religious spaces. They were scaled with an emphasis of verticality, with dematerialized walls, thus the building became a diaphanous skeleton whose mass is ideally reduced to a network of abstract lines. The vast sculptural scheme was symbolically mysterious and additionally, in combination with tracery, gave the impression of a highly textured surface with delicate shadow play. Through the dematerialized walls of gothic cathedrals light penetrates through stained glass windows. This colored glass transformed the natural light into a mysterious medium. Within the composition which aims to soar and mystify the user there is more being communicated. For example, in the cathedral at Chartres in a window of the nave the panel depicts an executioner distracted by a sheep in the middle of his duties. This could be interpreted in multiple ways but it provides a different level of understanding (or communicating) than that provided by merely the materials and formal arrangements while at the same time contributing to the effect achieved through materials and formal arrangements.



figure 4.15



figure 4.16

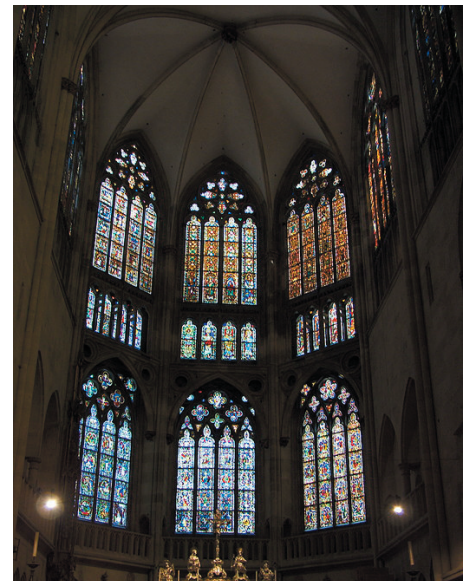


figure 4.17



figure 4.19

DOMINUS WINERY — — — — — Placed in the heart of the vineyard away from the road, Herzog and



figure 4.20

de Meuron's Dominus Winery becomes an object in the landscape. This two storey linear box runs on an axis from north to south and is punched by two pass through areas, separating the functions of the building. The intriguing characteristic of the building is its skin, galvanized steel gabions filled with basalt rocks. The skin is both handsome and functional, modulating both heat and light. Three sizes of mesh are used and the largest of rocks are stacked at the top, reversing the traditional notion of largest members at the base. This uniform skin wraps a number of different functions. Only the density of rocks in the skin respond the these functions.



figure 4.21

This seemingly archaic skin heavily contrasts the large panels of glazing located behind, within the envelope. There are multiple dual understandings to this architecture, a fusion of natural materials into a humanly ordered composition, both heavy and light, and both ancient and modern. The stones provide a reduced visual impact into its surroundings but the utilization allows for the skin to be compelling at the same time. During the day it recedes into its surroundings, the building's interior lit by a filigree of light while at night it glows like embers in a fire. The stone gabions become an architecture of ages past while at the same time being conceived of as a contemporary skin.



figure 4.22



figure 4.23

LEVER HOUSE

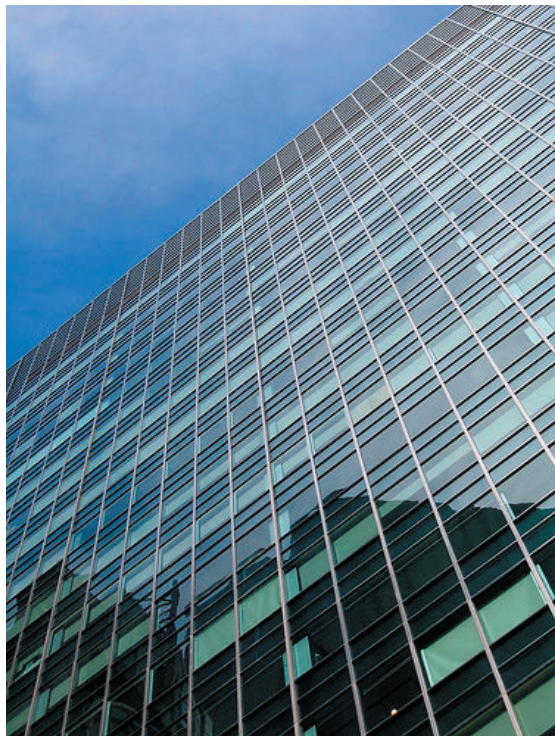


figure 4.24

figure 4.25



The Lever House, designed by Gordon Bunshaft of Skidmore, Owings, and Merrill, was one of the first office buildings to combine modern materials, modern construction, modern functions, and the modern plan. This building was one of the first buildings to utilize a curtain wall where a skin hangs from the structure. Utilizing blue-green glass panels the architect strived to achieve the aesthetic of an extremely thin skin, with little depth. The building's structure is concealed behind the skin by two different types of panels, spandrel and clear glass. The building's form was the simple geometry of a vertical slab occupying a portion of the site offset by a horizontal slab at the base.

This building set the standard for glass and steel modernism for years to come, it became a model of commercial buildings. Clarity and understanding became the prominent characteristics of this architecture. The effort for a "clean" design even carried through to the design of a permanent rooftop window cleaning apparatus. This masterpiece of high modernism led to many architects emulating the aesthetic. This building aesthetic has been copied in everything from office slabs to civic buildings. None of the copies of this building matched the sleekness or innovation that the Lever House possessed.

DACCA ASSEMBLY



figure 4.26

Louis Kahn's assembly at Dacca was a geometrically precise monument which combined both orthogonal and circular forms to compose the space as well as the image of the façade. There is an intentional ambiguity in perceiving the scale of the façade. Kahn subordinated the use of glass in the exterior perception of the building so that the façade became understood as a layer of a massive material with open air punched openings. Moreover, any sense of entry or human scale is not readily perceptible. While at first glance the building appears to be simple, the sharp contrast between solid and void, light and dark, and heavy and light give the building a level of complexity.

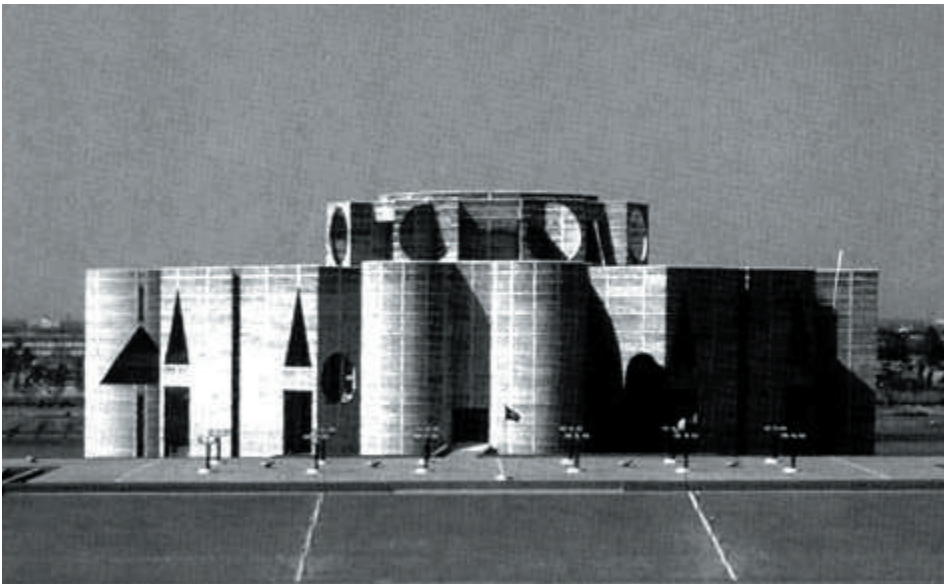


figure 4.27



figure 4.28



figure 4.29



figure 4.31

BAROQUE CHURCHES

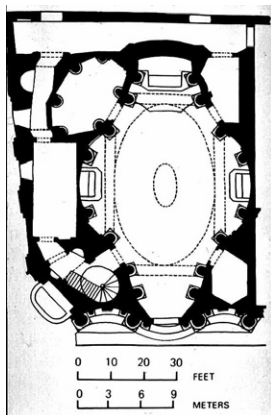


figure 4.30

Baroque architecture was a reflection of the cultural systems in place in the seventeenth and eighteenth centuries, mainly those imposed by the Catholic Church. This architecture expresses the self confident mood as a result of the counter-reformation, expressing pomp and mystery as associated with the powerful papacy. Baroque architecture awed the user and exemplified sensuousness. It focused on the harmonious qualities of symmetry and proportion as the architects of the Renaissance did, but this architecture had a new feeling of dynamism and grandeur. The Baroque period took lessons from Renaissance architects but aimed to overwhelm the senses and emotions. In Borromini's San Carlo Alle Quattro Fontane there is a mixed use of convex and concave forms. There is a distinct complexity with the interlocking of these two geometries. A rich plasticity is achieved in the walls. The floor plan also responds with intersecting ovals. The dome of the church has a complex patterns of coffers of crosses, ovals, and hexagons.

5 THESIS DESIGN PROJECT _ MILWAUKEE CONTEMPORARY THEATER

A theater is a vehicle for exploring this thesis topic of skin and surface. The theater's major spaces will be a black box theater and a proscenium stage theater. The exploration of the skin works well with a theater simply because of the functional requirements for a theater to enclose a large spatial area and to keep out daylight, therefore its solid surface area is greater than most buildings. The surface area that the people of the city will perceive is considerable.

Theaters historically have been outside on open natural sites or in open-air structures. Italian theater started the separation between theater and outside world, incorporating ancillary spaces for the stage and public reception spaces for the audience. Our current conception of a theater is that it should be enclosed, separating its world from the outside world. Theaters contain spaces which become other worlds where a skin shuts out the real world and suspends reality: the theater as a source of escape for the people of the audience.

The function of performance is a constant, but the diversity of performances establishes no permanency in meaning; while one performance arouses laughter another generates tears. Therefore the performance of theater is something concrete and something ambiguous at the same time. Theater's sense of complexity and mystery can be correlated in those qualities as communicated through the skin. Theaters in general invite dialogue about mystery and clear communication.

PROGRAM

400 seat proscenium theater

lobby

stage, backstage, and wing space

dressling rooms

green rooms

control room

100 seat black box theater

black box lobby

reference library

reading lounge

classrooms

kitchen

administration offices

theater set workshop and costume shop



PHYSICAL AND CULTURAL CONTEXT



figure 5.1

milwaukee art museum



figure 5.2

milwaukee skyline from lake



figure 5.3

milwaukee at night

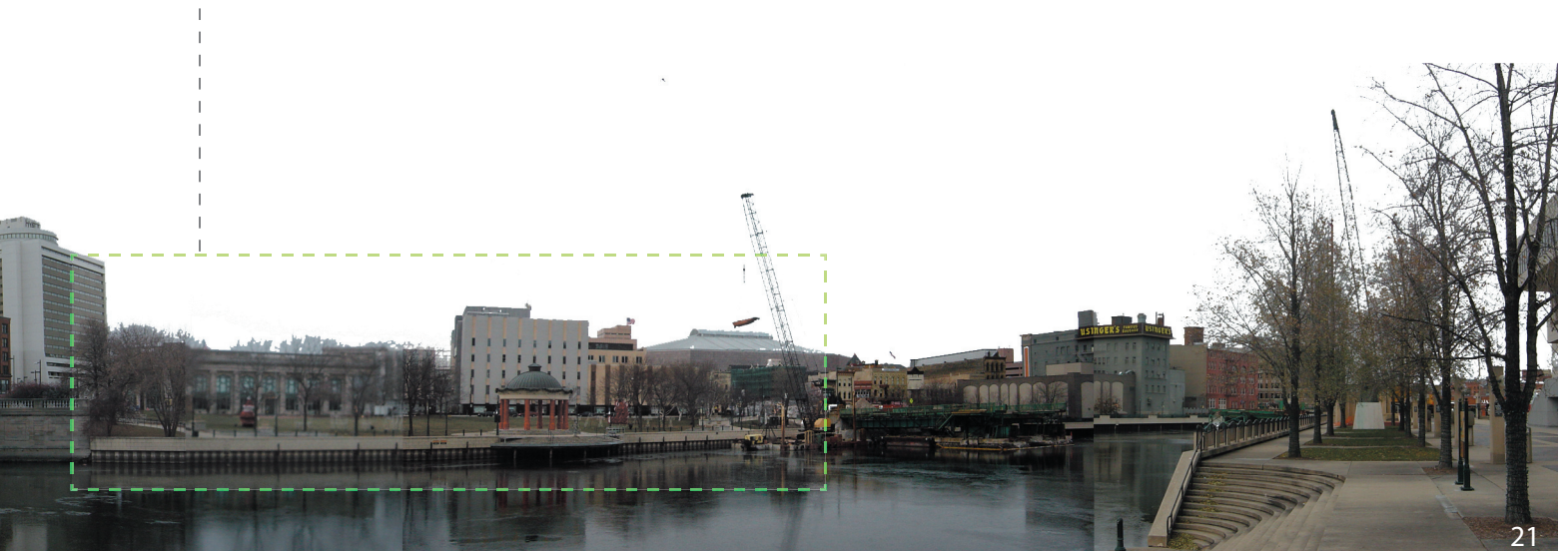
The project location is in downtown Milwaukee, Wisconsin. Milwaukee, Wisconsin's largest city, is known as a blue collar city with many major factories the likes of Miller Brewing Company and Harley Davidson. For years Milwaukee tried to overcome the "beer and brats" image. The Milwaukee Journal Sentinel writes "the story of Milwaukee is a tale of two cities: a cosmopolitan, 21st century community emerging from the cocoon of a 19th century Germanic enclave." This is evident in Milwaukee's recent burgeoning in the arts. There is a successful regional theater company in Milwaukee, a recently built Milwaukee Art Museum addition by Santiago Calatrava, and a talented Milwaukee Symphony Orchestra.

Milwaukee is firmly rooted with a strong German history. Many ethnic events celebrate this history. The city is not only Germans though. There is a minority population of 40% comprised of African-Americans, Latinos, American Indians, and Southeast Asians.

Milwaukee is located along Lake Michigan and has the Milwaukee River running through downtown. The city has taken advantage of this by conceiving of a River Walk, a lakefront festival grounds, and successful lakefront parks. A new master plan for the downtown envisions a dense, walkable mix of entertainment venues and housing; removal of an old freeway spur that cuts off the north side of the city from its central business district; a year-round fruit and vegetable market in the Third Ward (a rejuvenated warehouse district); and a trolley or light rail loop to connect major activities. A theater is an added attraction which will attract people to these downtown areas.

SITE

MILWAUKEE, WISCONSIN



SITE ANALYSIS

The initial thrust before developing design schemes was to analyze the context with relation to qualities pertinent to the thesis topic; mystery, complexity, and clarity. One specific photograph from the trips to the site was seminal in summing up the purpose of the thesis. The photograph is of the Milwaukee City Hall and the more recently constructed Frank P. Zeidler Municipal Building. It shows two buildings that have identical functions, the more recent building being a response to lack of space in the historic city hall. Although both containing civic functions, the municipal building, a product of the 1960's, is starkly different from the 1895 Milwaukee City Hall. The outward perception of the city hall conveys that of depth, importance, complexity, mystery, and most importantly, the image of a civic institution. The municipal building lacks any conveyance of a civic function. It also lacks any qualities of complexity or mystery, striving for clarity so typical of the 1960's modern movement, but resulting only in a banal, "what you see is what you get" image. The scaffolding engulfing the city hall (restoration was underway) only added another layer of understanding and added to its intrigue.



1



2



10



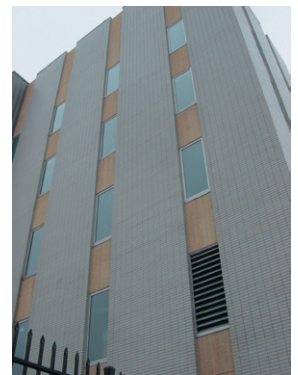
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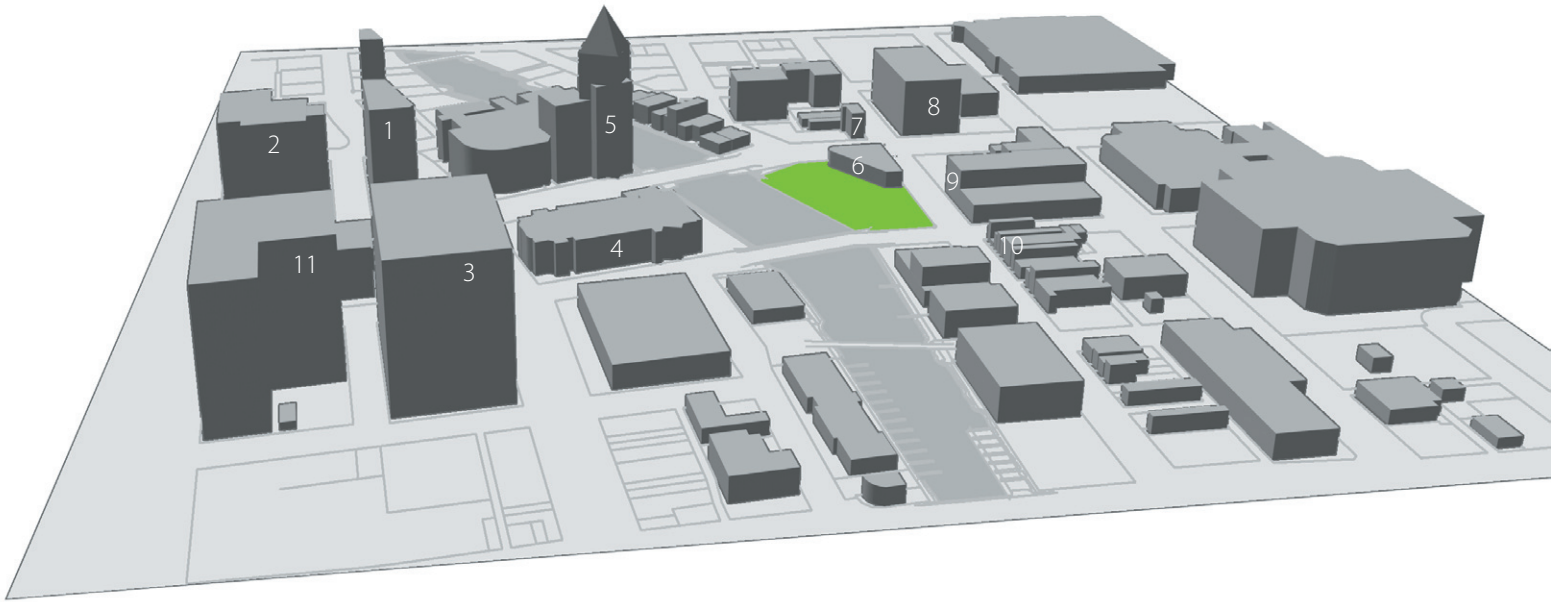
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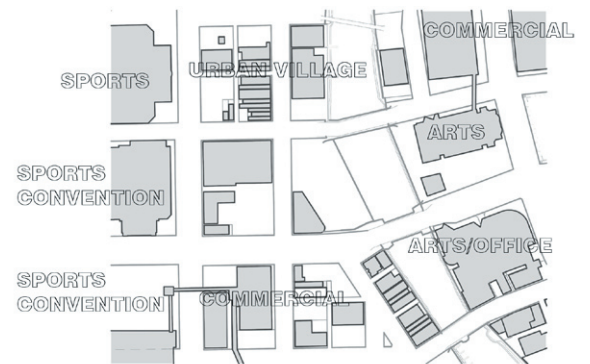
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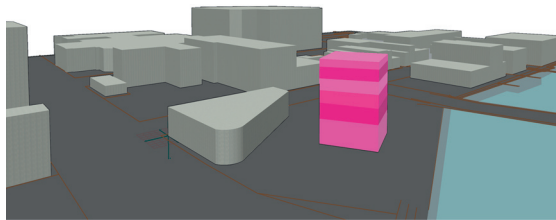


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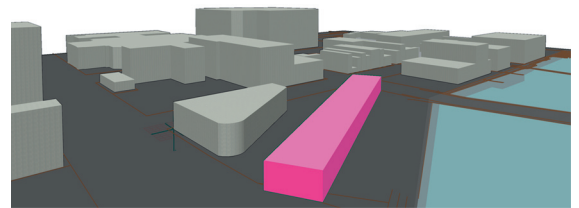
An important observation of the site was that, due to its activities, the site is drastically different from day to night. A zone of performing arts facilities and a zone of sports entertainment facilities converge at the river. Dispersed amongst both zones are pockets of restaurants and bars and retail. During the day the surrounding site area is relatively unpopulated. This is countered by an extreme vitality during the evening and night when the sports, performing arts, and dining events are underway.

INITIAL DESIGN DIRECTIVES

Taking the programmatic desires into consideration two massing extremes were developed and analyzed according to how such a massing might be perceived in the site.



vertical massing extreme



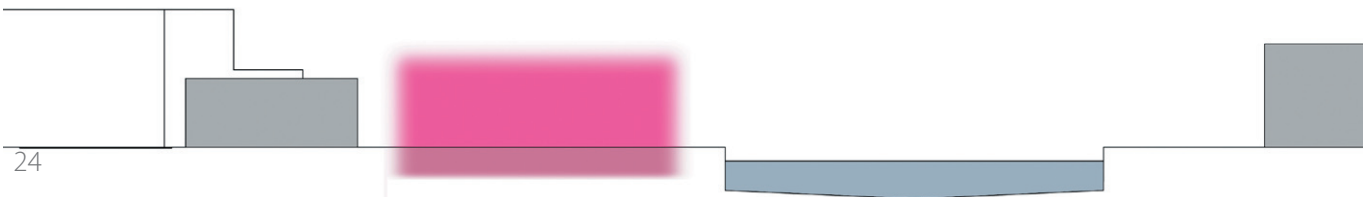
horizontal massing extreme

Other design motives were developed during the early design stages.

_Skin should be an envelope enclosing a mass of about 40 to 50 ft. in height, or approximately three stories

_The theater may be an opportunity to infuse some color into a colorless context

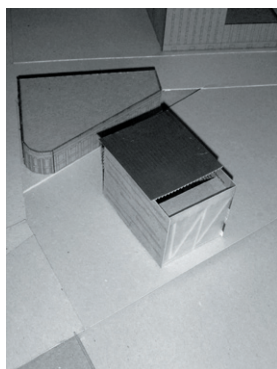
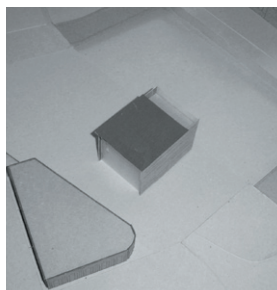
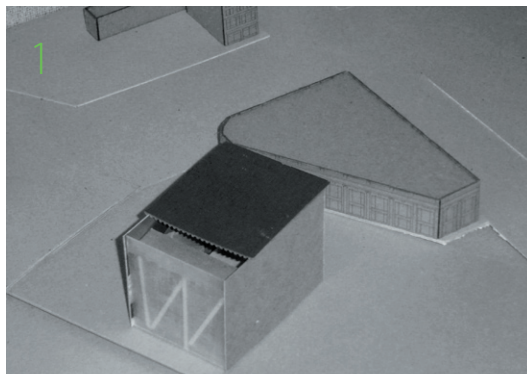
_In order to reinforce the character of the activities of the context, time and the importance of certain moments in the building can be expressed through the skin



CONCEPTUAL SCHEMA

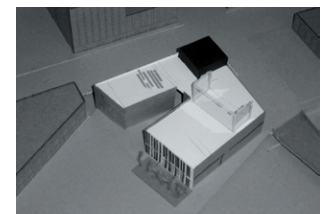
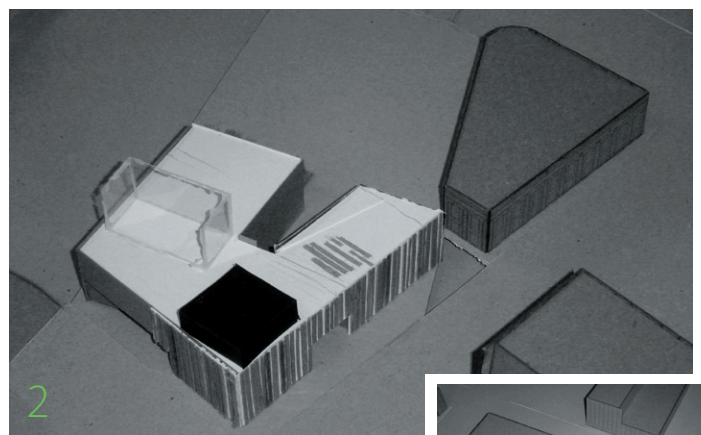
scheme 1

The first scheme took cues from the massing study, arriving at an emphatically vertical arrangement. This “object in the landscape” approach incorporated four different skins in order to provide perceptual variety from different points in the city. Two decidedly more transparent openings are hidden from the surrounding urban streets, opening instead to the river and to an outdoor space between the new building and an existing building. These skins are slowly revealed on approach to the building. Two monolithic solid walls face out to the city streets. The skin of these walls use manipulation of light and mainly scale to obfuscate the understanding of the building to the observer.

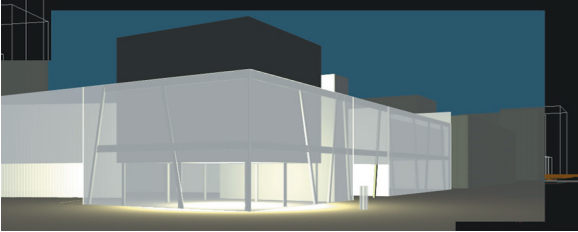
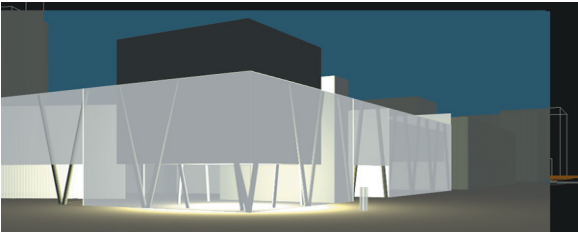
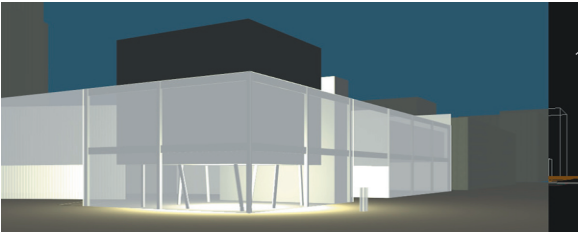


scheme 2

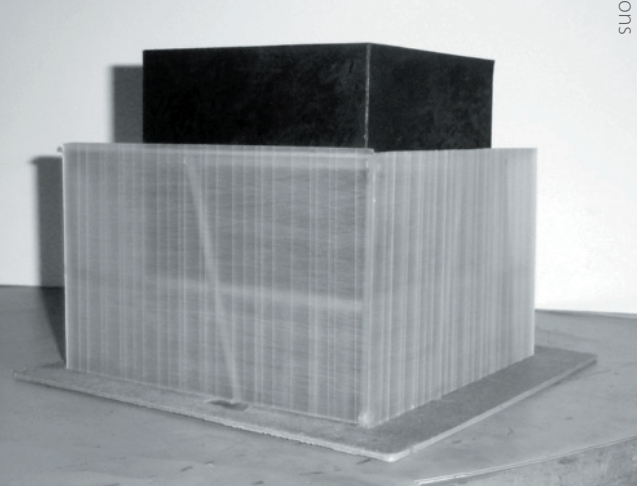
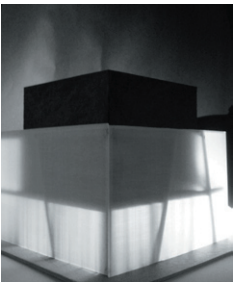
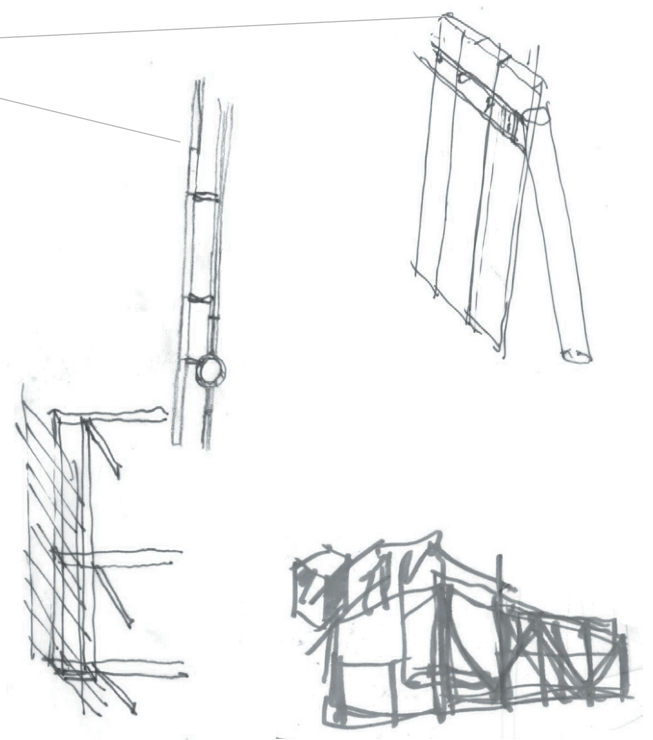
The second scheme adhered more respectfully to the urban condition. A series of skins of various tectonic execution wrapped the exterior along the urban edges and also at the park edge. The skin emphasizes verticality and a rhythm as it moves down the block. This is in response to observing steel corrugated shoring on the site, which holds back the land from the water. Two objects, the black box and the proscenium flytower projected through the skin at the roof layer.



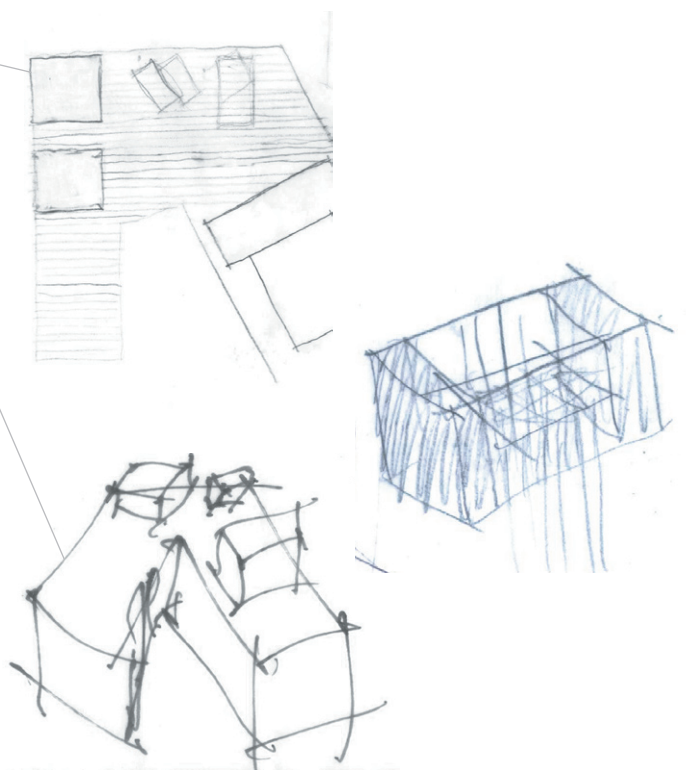
DESIGN PROCESS

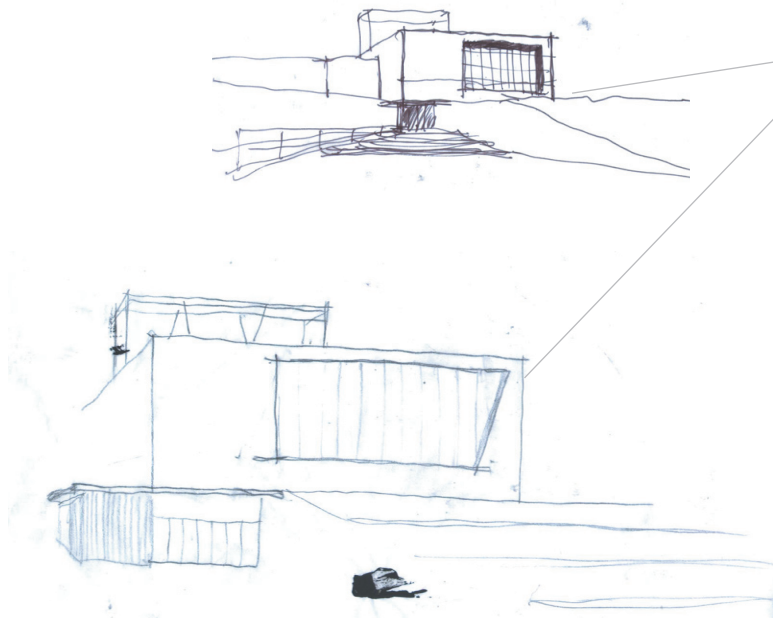


structural system explorations

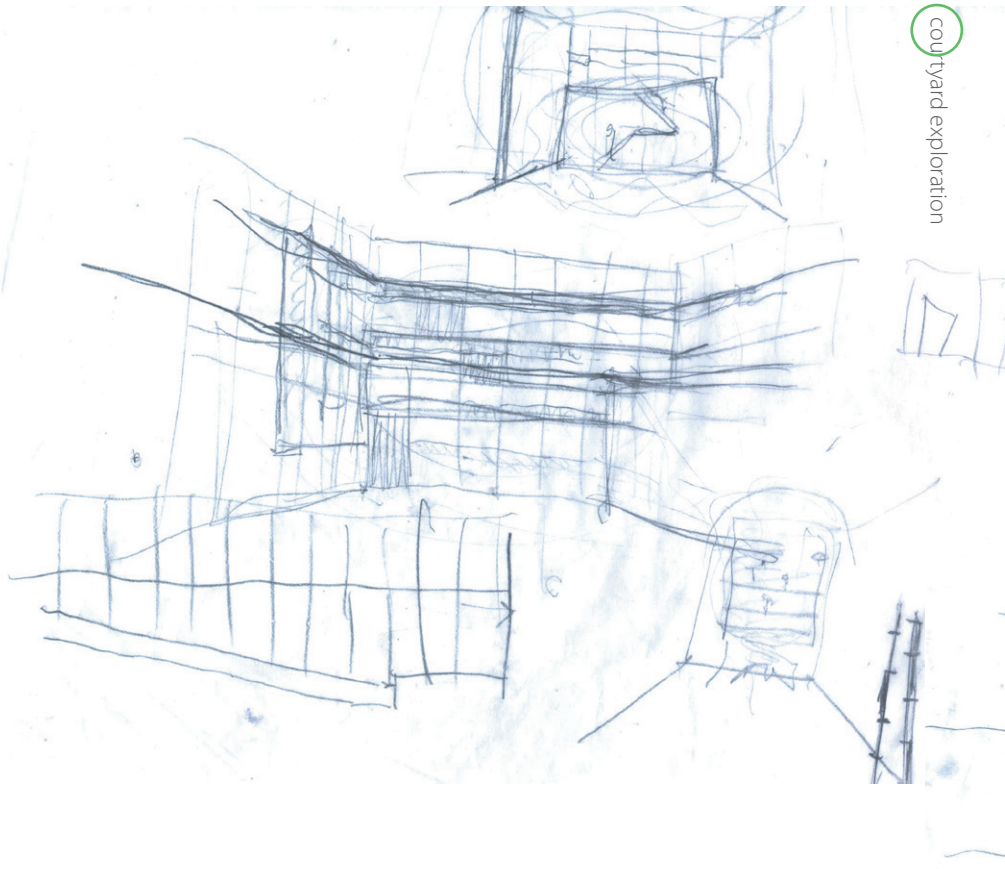
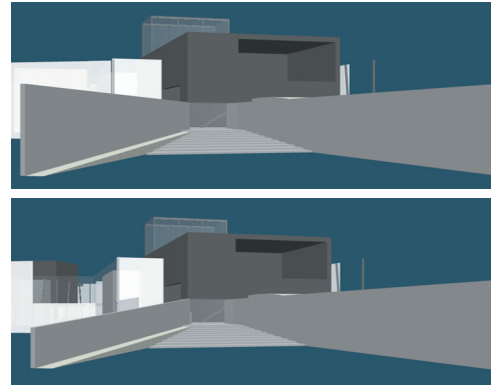


programmed object explorations

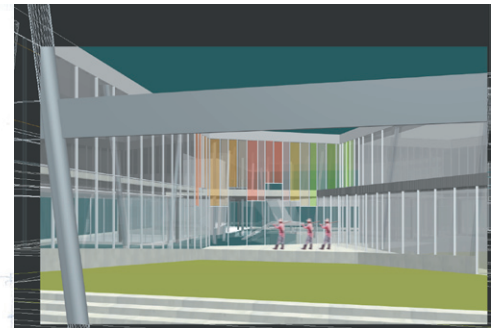




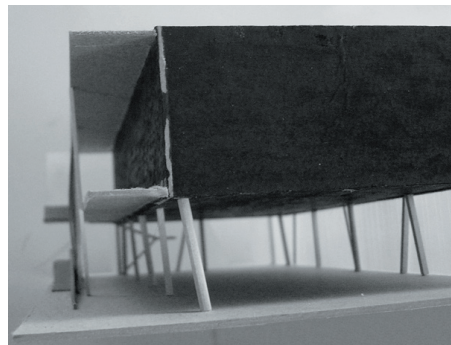
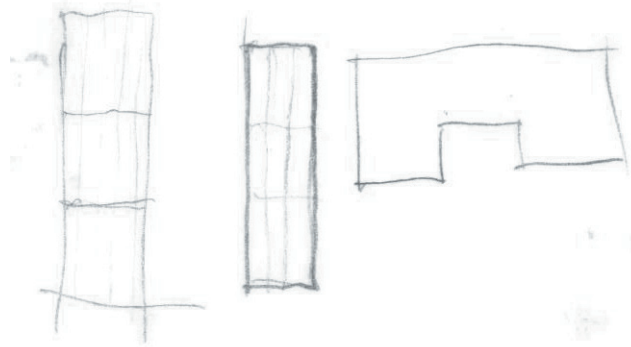
proscenium entry exploration



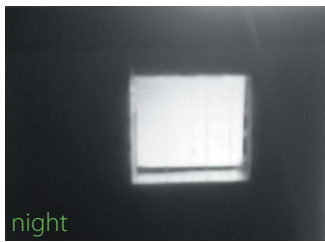
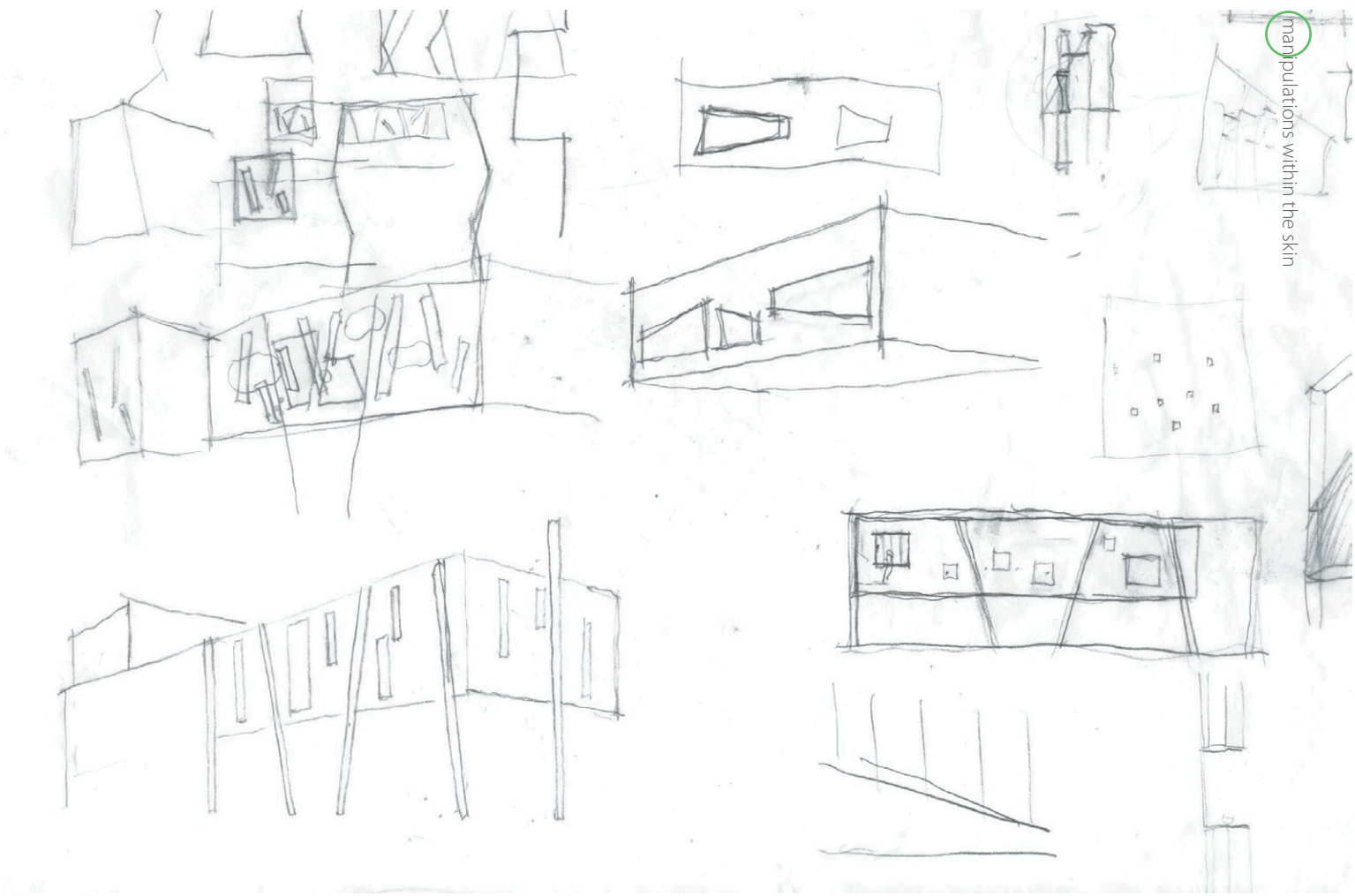
courtyard exploration



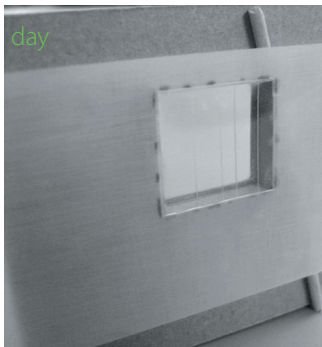
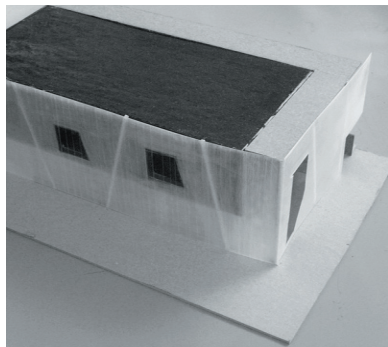
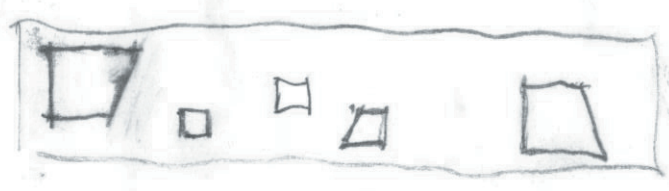
building skin



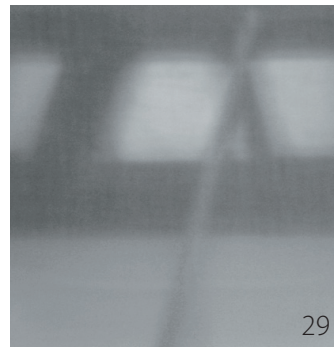
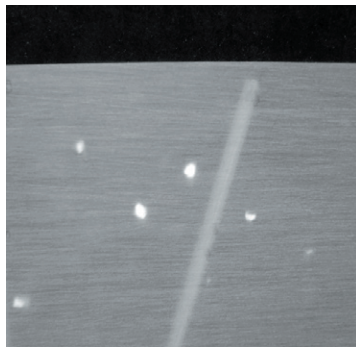
manipulations within the skin

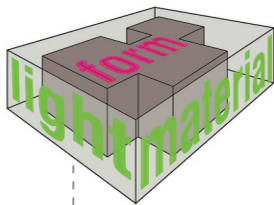


night

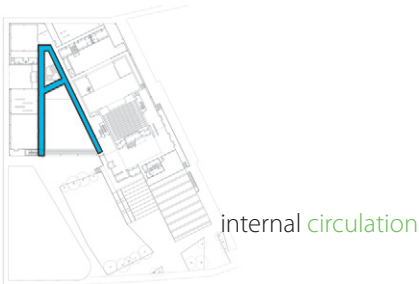
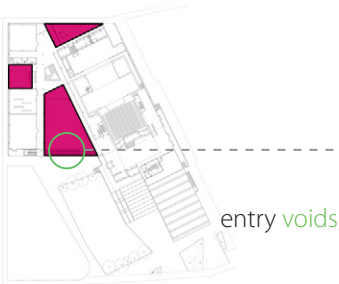


day

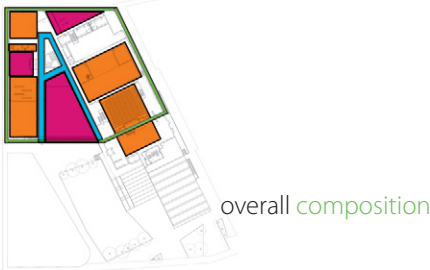




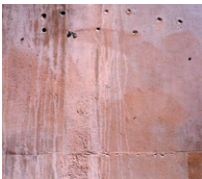
In this design project the skin is conceived of as the element of the building which challenges people's perception. It gives the building characteristics of mystery and obfuscation and gives it the opportunity to have a transformative quality based on time. The focus of this skin is to express the inherent characteristics of its material and to manipulate light, not to become a generator of form. The skin, in fact, masks the formal language of the design. What is contained within the envelope of the skin becomes formally expressive. The skin responds to the context as an urban edge while that contained within responds to programmatic needs.

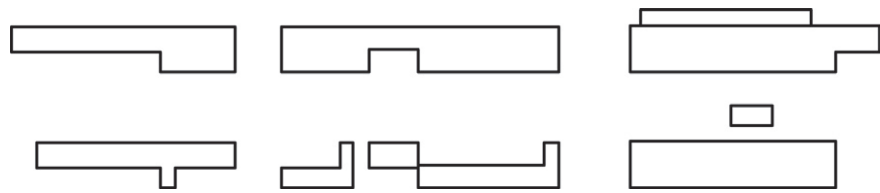


The building responds to the site in both conceptual and physical ways. The skin is composed of translucent panels, patterned to refer to the steel retaining wall along the river but conceptually more akin to the river itself, which responds to light in different ways to either obscure or reveal its depths. The programmed objects within contrast with the transparent nature of the skin and are expressed as heavy solid boxes. The surface of these objects is highly textured which also relates back to walls of a river and the gritty industrial identity of Milwaukee's origins. The skin adheres to the edge conditions created by the surrounding streets and the Milwaukee River. The site also provides outdoor space for the public to use.



material abstractions



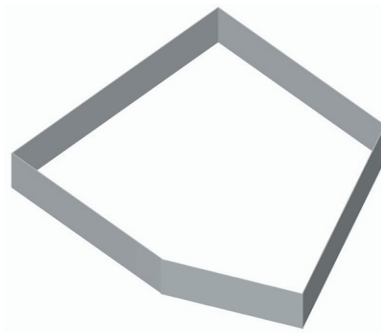


multiple reads

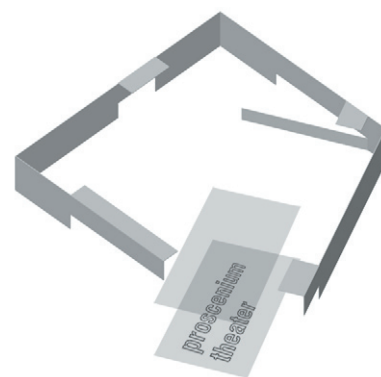
The perceptual understanding of the building becomes understood differently at different moments. The building's mystery and clarity are revealed through time. The daytime read of the building is that of a simple, fairly uniform building with only a hint of something different within, stimulating further discovery of the building. The evening read (a significant time for the function of a theater) is something completely different. The building's evening glow highlights the programmed objects within. Through transparency, light, and formal manipulation the building achieves its highest degree of clarity in the evening hours.

These two reads of the building at day and night are furthered by the two types of voids that make up the composition of the building, and the meaning associated with these voids. The first understanding of voids is a literal peeling back of the skin to create a void for entry. Entrance voids are the interplay between the city and the programmed elements within the skin's envelope. These include the black box theater entry, the proscenium theater entry, the car park entry, and the parkscape entering into a courtyard space of the building. This courtyard space is utilized as an outdoor amphitheater. The second understanding of voids are the voided spaces in the building outside of any of the solid object boxes. These voids are only perceived in the evening when the building is lit up and glowing. They serve to further highlight the programmed objects within the envelope.

The most important function of the building, the proscenium theater and its lobby, breaks from the constraint that the skin gives to the rest of the building. Here the building presents itself with clarity. The roof plane as a skin also has volumes which break the simple envelope of the skin, including the black box theater, the proscenium flytower, and the skylight volumes. The roof surface and the park facing surface are free to have breaks from the skin as they are not responding to an urban edge.



skin conception



skin alteration

DESIGN SOLUTION



While the skin which cloaks the building challenges one's visual acuity, the parkscape outside of the skin's envelope is approached with a concern for a user's tactile and sensual experience. The materials utilized are heavily textured and weather over time and leave their traces when physical contact with them occurs. The ground plane makes use of various paving and surface textures to provide the user with a multifaceted corporeal experience. The color of the corten steel references the various elements within the building which are red.

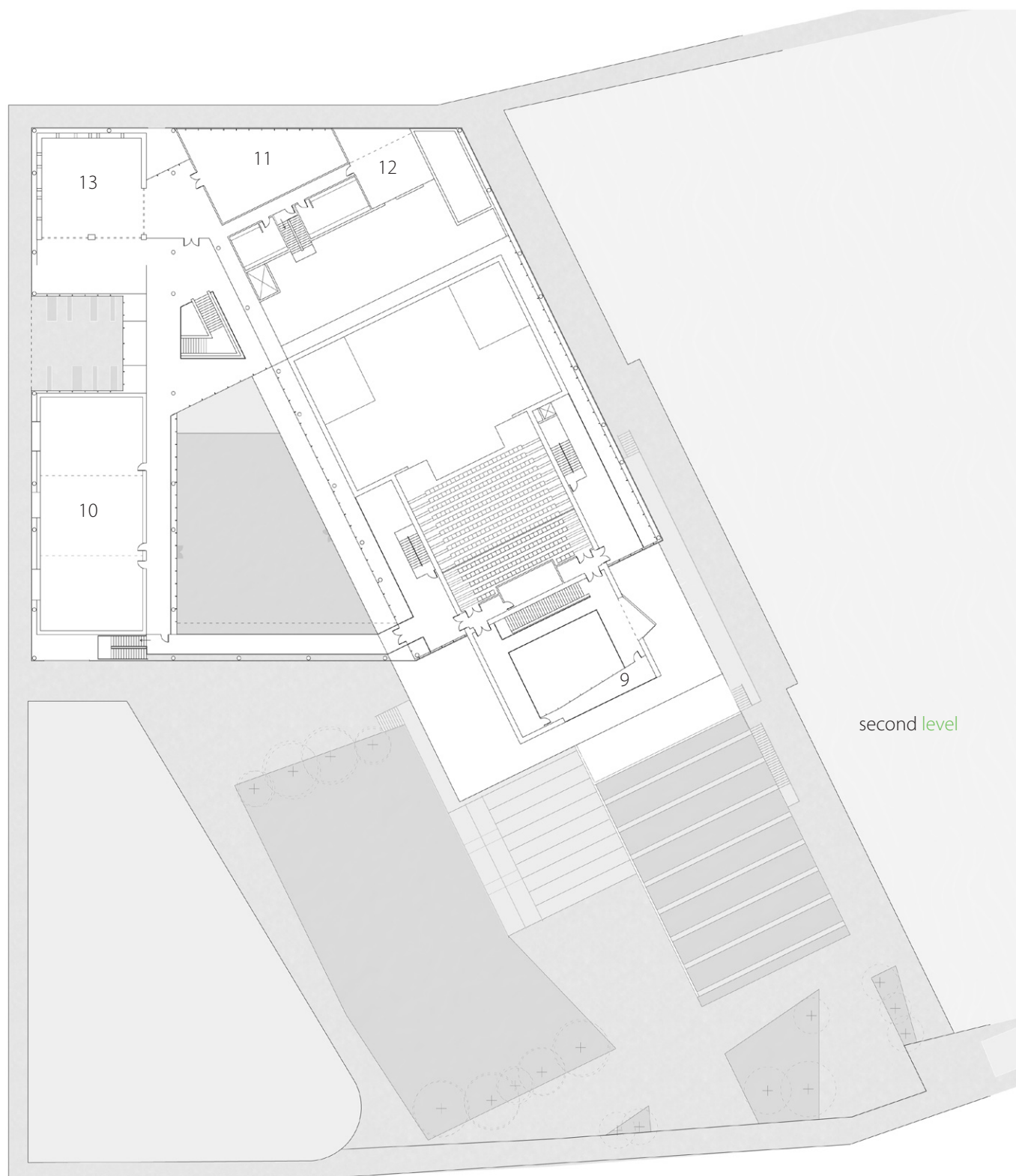
proscenium entry

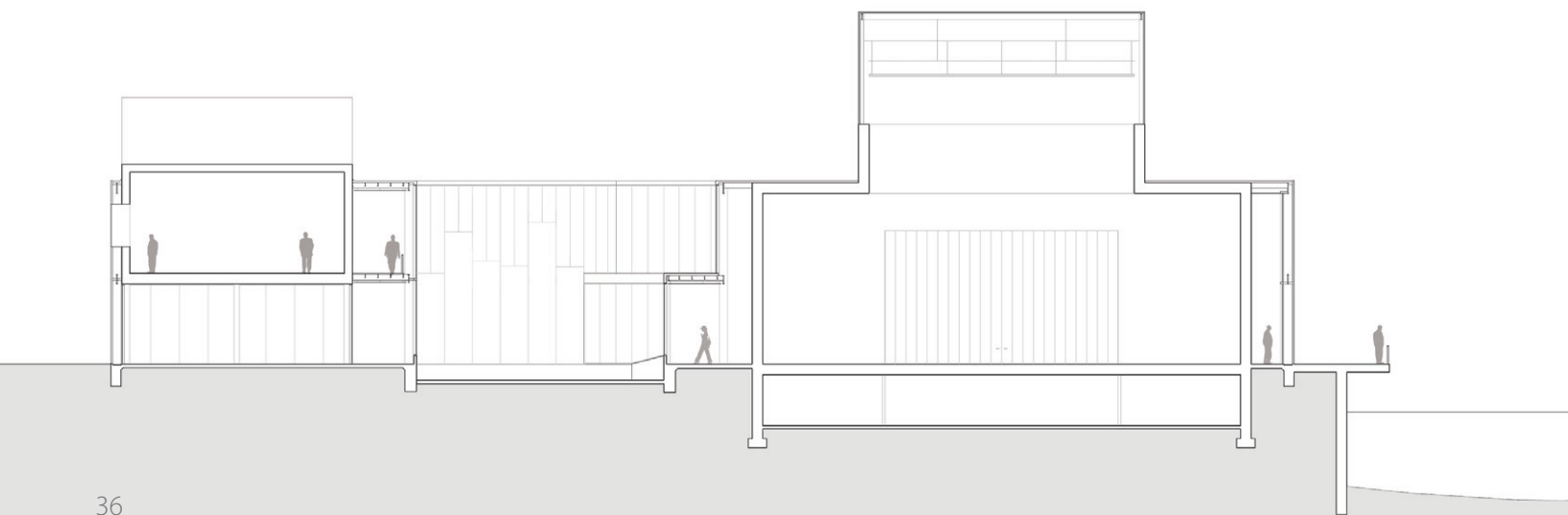


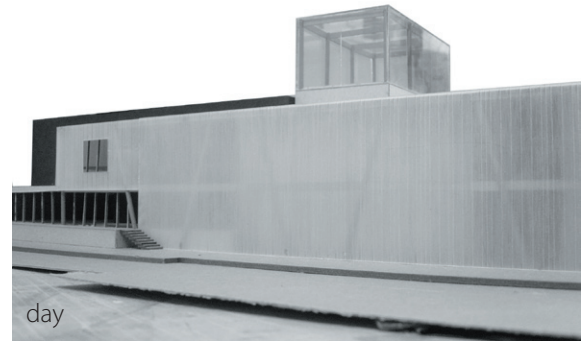
1. proscenium lobby
2. proscenium theater
3. set construction shop
4. makeup labs
5. rehearsal room
6. reference library
7. administration offices
8. courtyard amphitheater



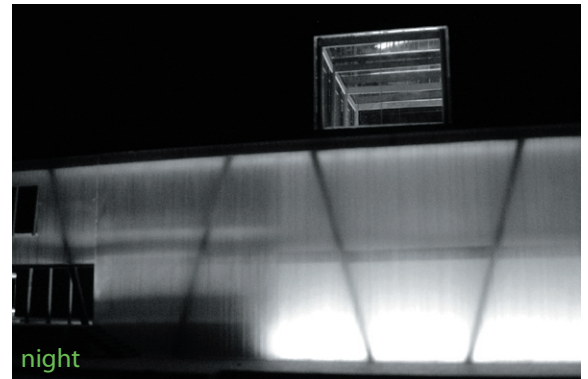
- 9. balcony overlook
- 10. classrooms
- 11. rehearsal room
- 12. artist's patio
- 13. black box theater







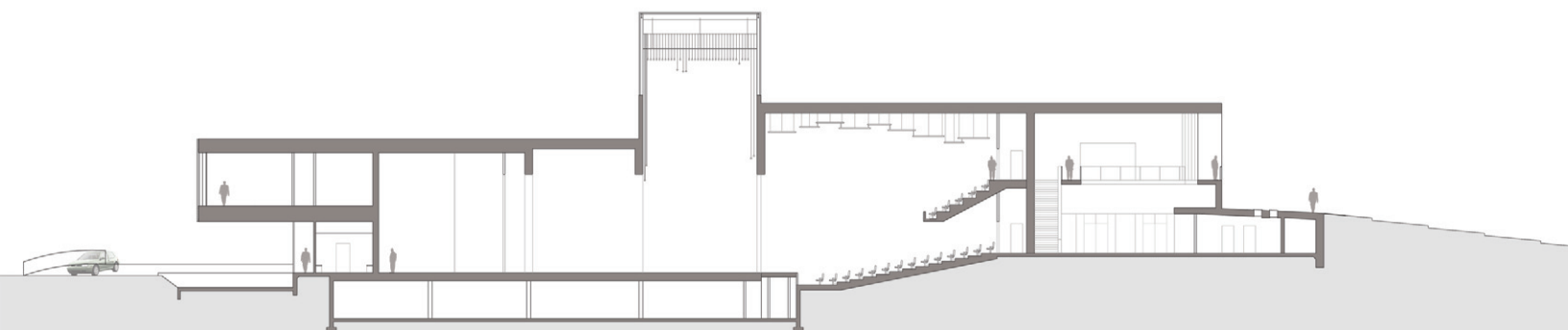
The structure and its relationship to the skin also adds another layer of understanding to the building. The skin and its regular order is contrasted by the seemingly disordered organization of its structure; a disorder most clearly perceived at night when the structure is illuminated from within, revealing more clearly the structural system of the building.



river facade

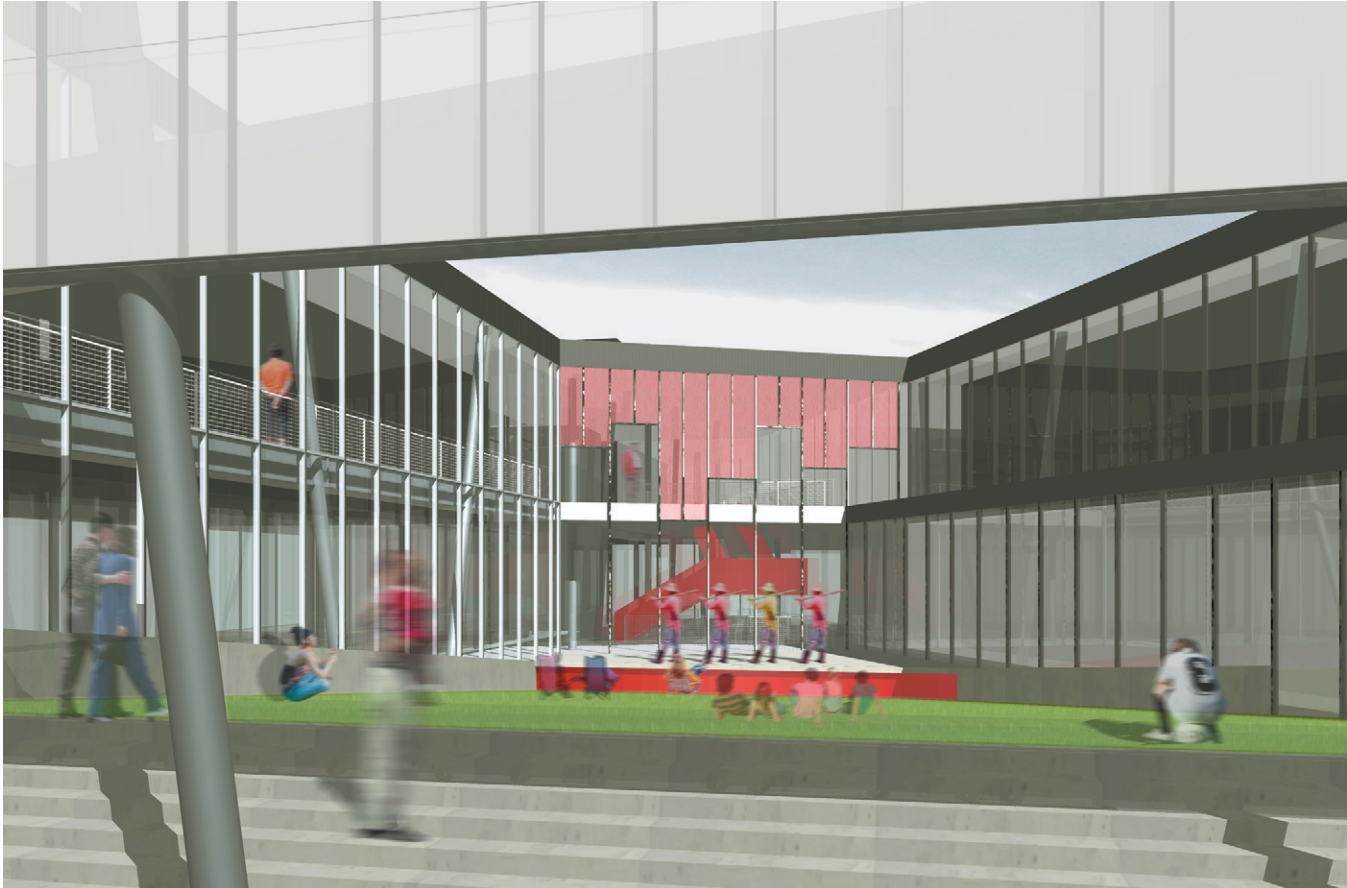
street facade

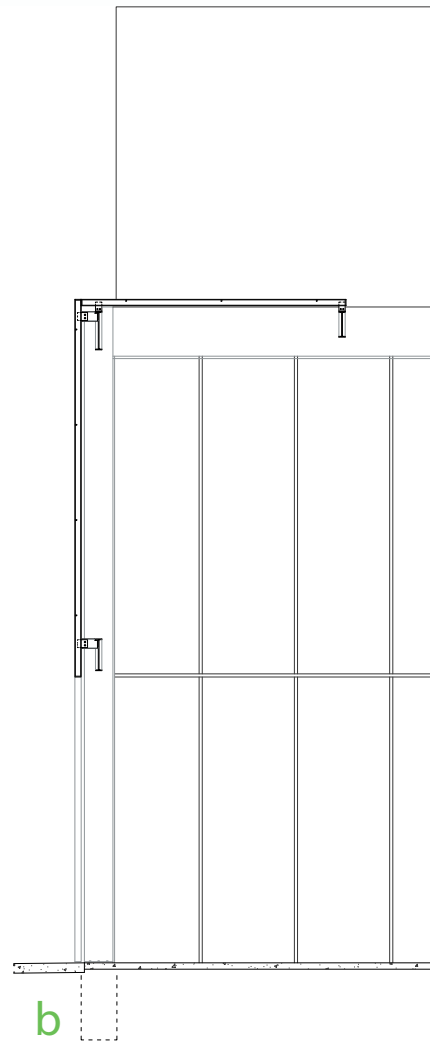
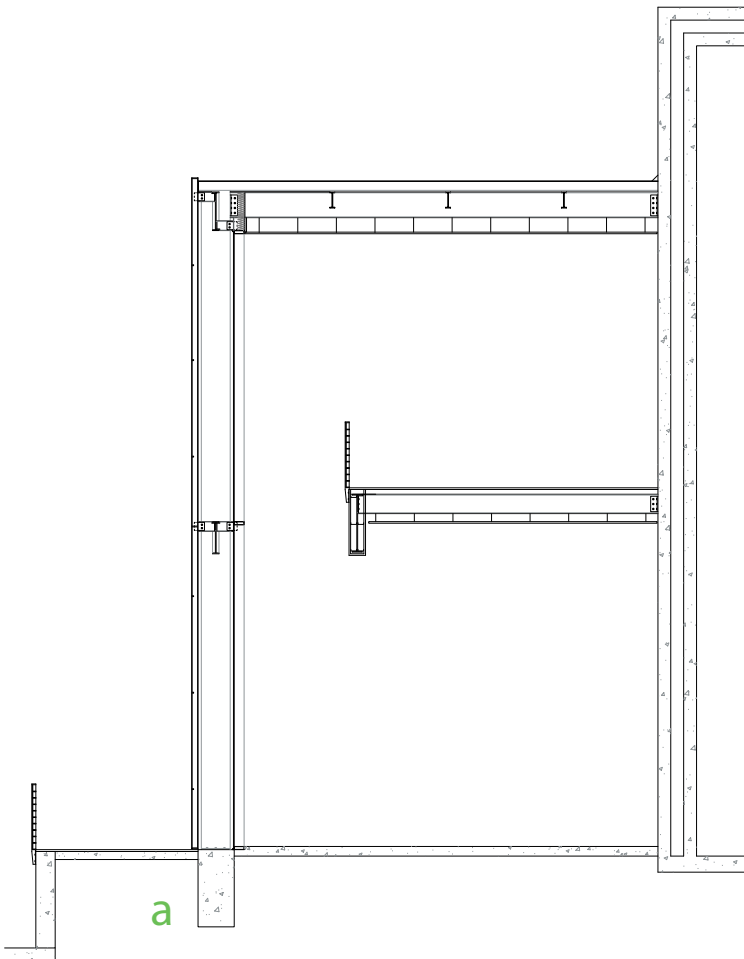
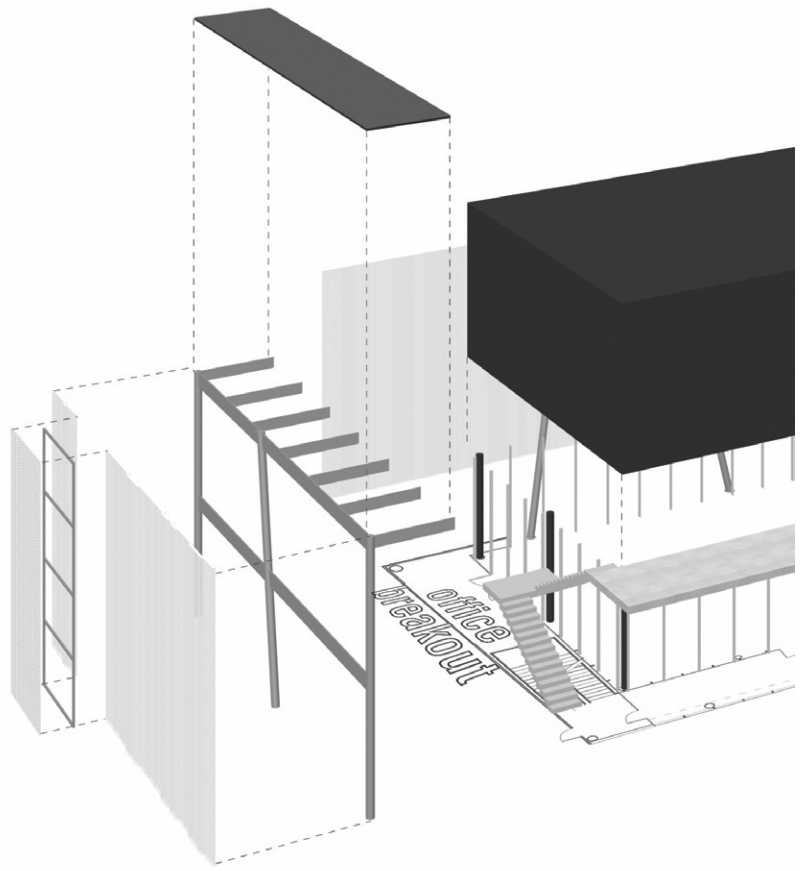
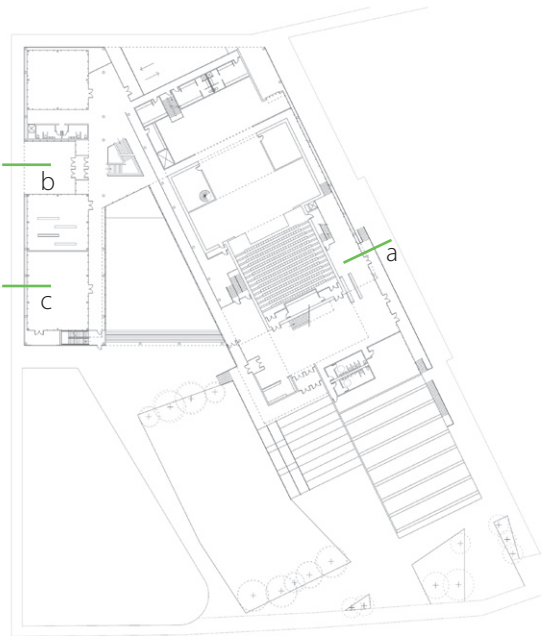




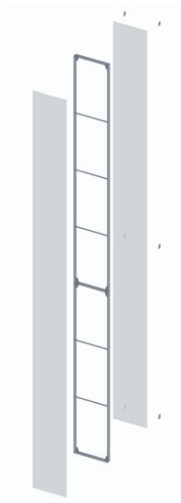
The skin of the courtyard zone is treated differently in order to celebrate the activity, movement, and spirit of the building and its people [both the public and house workers]. Here, the human activity of the building and the courtyard becomes the focus while the building becomes the background, this is counter to the city skin move, which puts materials, their construct, and the resulting reads into the forefront. The forced perspective of the space brings one's vision to the amphitheater stage area, where either the performance or the activity within the building's central circulation area is put on display. The glazing and mullion pattern beyond the stage abstracts a stage curtain and frames the outdoor performances and people circulating.

courtyard **amphitheater**

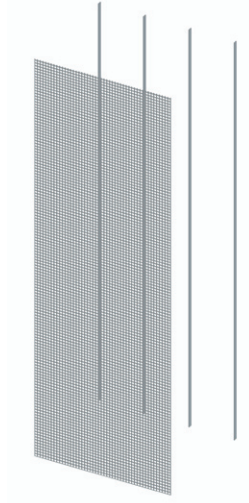




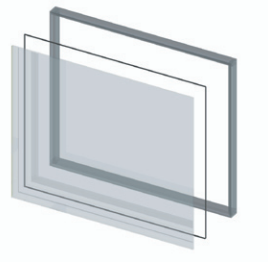
Within the skin, clear glazing and perforated metal screens are incorporated in various circumstances. The metal screen is used when adjacent to an open air space. The clear glazing is used for spaces within the weather barrier of the building. This slightly alters the daytime read of the building but ultimately has a major impact on the night read. This resulting skin composition gives subtle hints of programmatic differentiation within, but deviating away from predictability enough to have an impact of the delight and interest in the read of the building, largely at night.



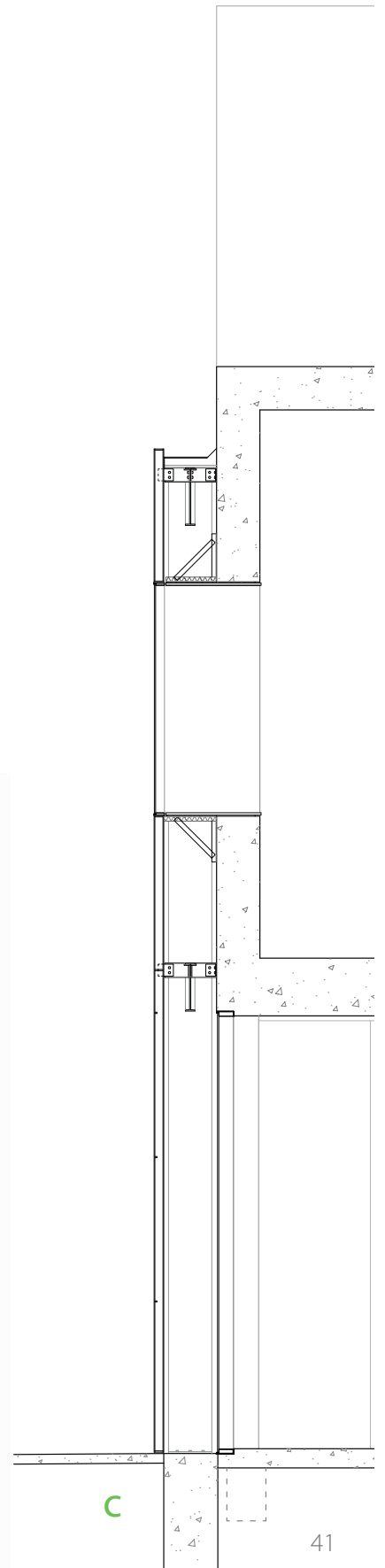
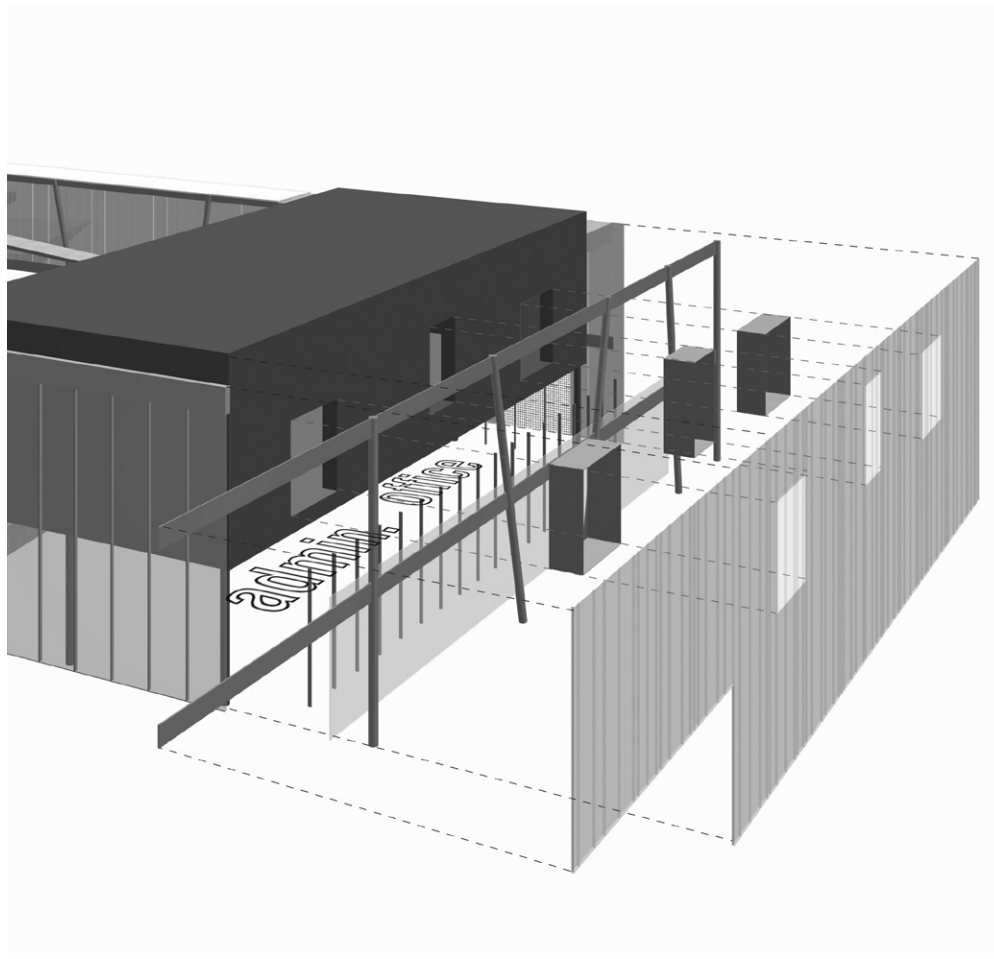
polycarbonate panel



mesh panel



clear glazing



Over time, the exterior surface of a building has played a critical role in the read of architecture. The surface has been responsible for conveying the symbolic and stylistic norms of each era. Historically it had structurally supported the building, however more recently due to the industrial revolution and the modern movement it simply hangs at the perimeter of a building to divide the inside environment from outside. In this thesis I have attempted to explore the potential for building skins of today with regard to qualities and characteristics often lacking in contemporary architecture.

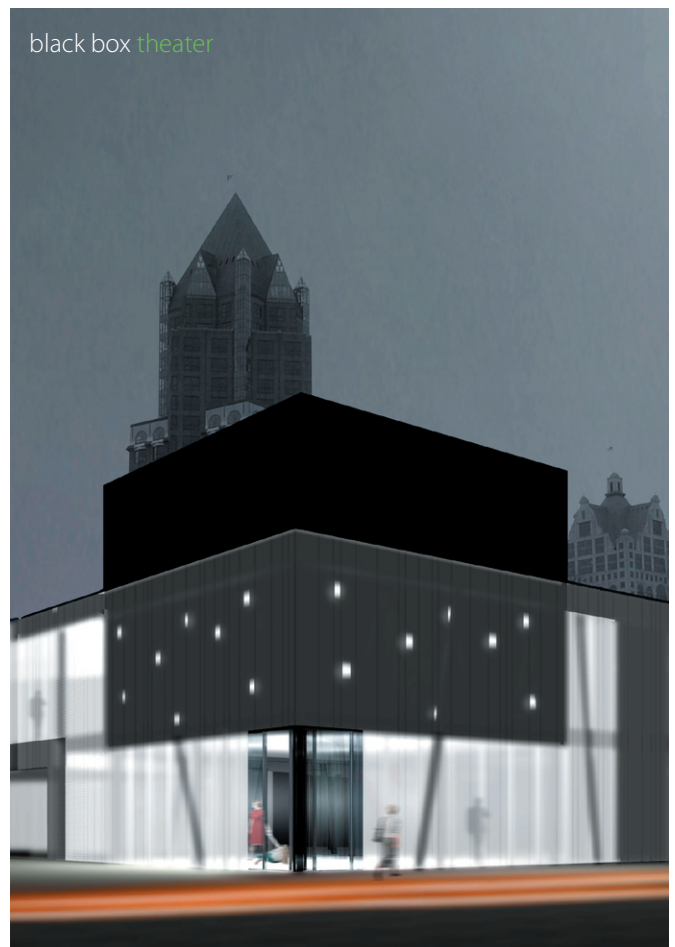
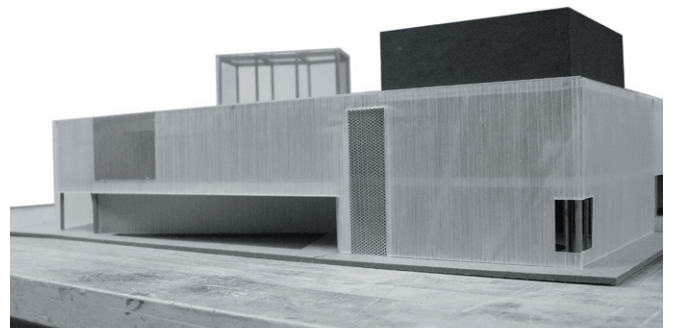
Developing design moves for the thesis design project was aided in part by very helpful precedent studies from both age old architecture and modern built work. A gestation period was clearly advantageous for drawing inspiration from precedents as not all the design concepts [approaches] came about at once. Le Corbusier's chapel at Ronchamp exhibited mysterious qualities which both consciously, and I'm sure, unconsciously, influenced my design. Similarly, a study of contemporary architecture which utilizes an innovative skin proved helpful in designing an architecture which referenced buildings of the past but still embraced contemporary tectonics.

Finding a multitude of ways to arrive at certain qualities in one design project proved to be challenging. Effort was made to not arrive at a building that is overly homogenous, or singular in the way it is perceived. Designing a building which transformed itself and exhibited complexity and mysterious qualities based on time ensured a building that would be perceived in different ways almost every time that one experiences the building. The obfuscating skin that wraps most of the building has points with clearer understanding of the building's true form while still remaining slightly ambiguous. This intent was proven most effective and convincing in the physical model. When lit up, the physical model most effectively shows how the building presents its programmatic nature with the most clarity in the evening, at performance hours.

Expressing the building's true nature (by way of the skin) during the typical performance hours allows the architectural motivations to resonate with the function which inhabits it. Communicating these multiple "reads" (obfuscation vs. clearer depiction of program) of the building is suitable not only for the emblematic portraying of the theater-going experience but also the derivation of lost architectural qualities. Employing design moves which result in mystery and complexity are not incorporated to return to architecture of the past. Rather, it is to, as William JR Curtis writes about Kahn's work, not change the aims of architecture, only the means of its communication.

night lobby





APPENDIX

restroom along the greenway

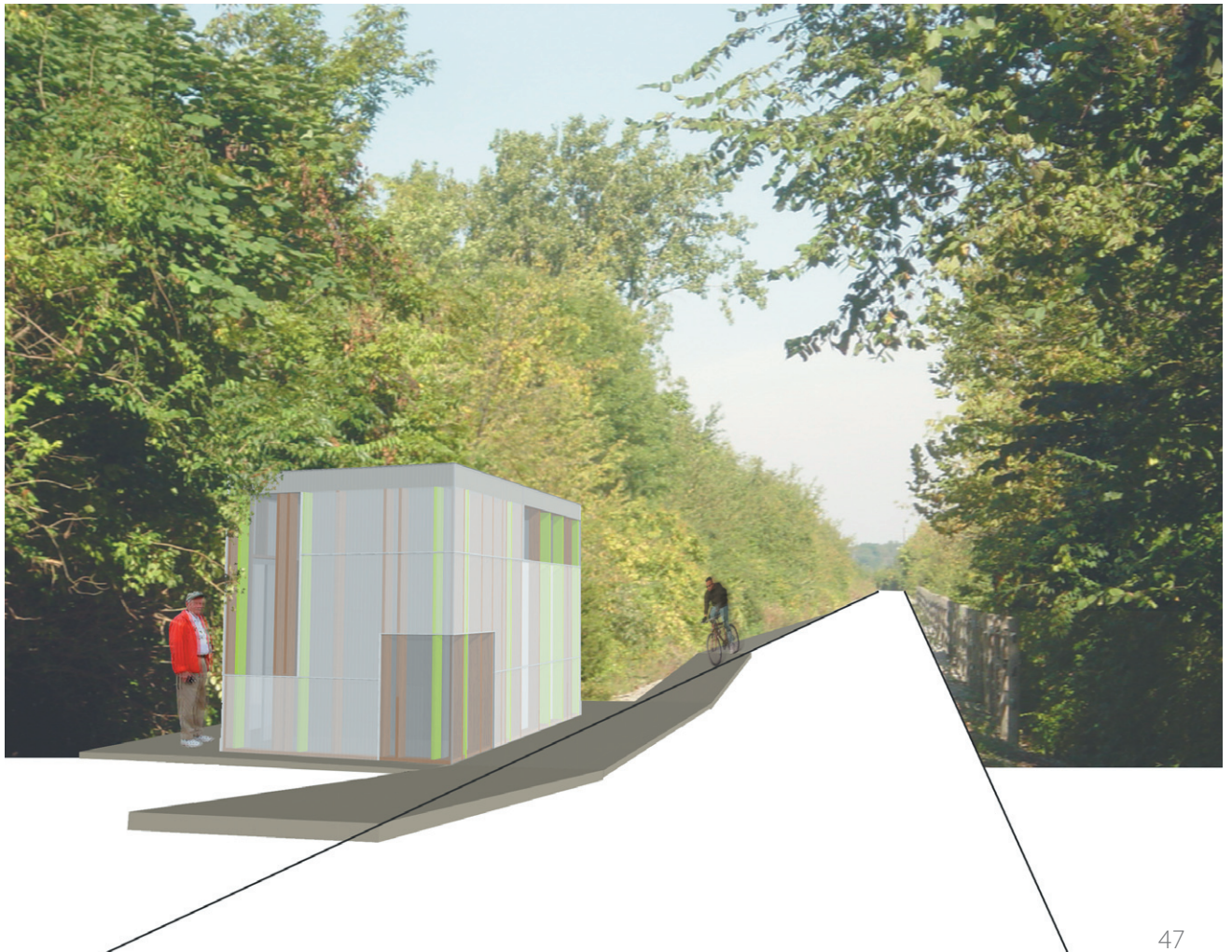
indianapolis convention center

DESIGN EXPLORATION #1

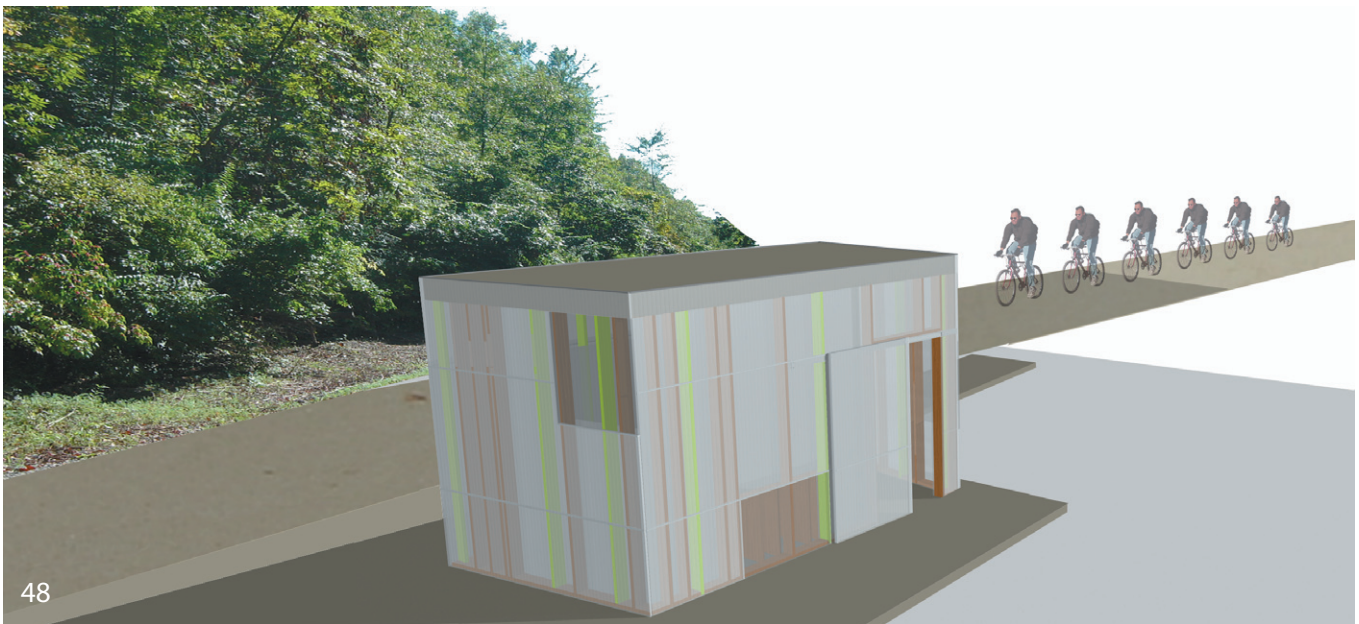
RESTROOM ALONG THE GREENWAY



The intention for the restroom along the cardinal greenway is for it to be perceived as an object in the environment. The object as a whole reads in a singular language. The object doesn't attempt to hide within its site but to be recognizable in it. It provides a point of reference and aids in orientation for users of the greenway while imparting identity for a portion of the greenway. While the restroom is an abstract object, some of its resolutions of design are based on nature and the organic. The vertical structure of the restrooms is spaced "organically," similar to the random spacing of trees as they grow in nature. These verticals generate a rhythm that, when a person jogs or bikes past the restrooms, is similar to the parallax of fields of crops.



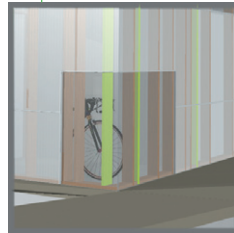
The skin becomes the vehicle for representation in terms of the building [object] in the land. The perception of the object by way of the skin is understood at two different levels. On approach the object is perceived as homogeneously wrapped by a material. The two different levels of translucency on the surface are not obviously recognizable. On closer inspection, the surface begins to reveal itself [while still being homogeneous] as having areas of differentiation that, as one uses the object and understands it better, give hints of function within the object. The hints are subtle as to create an aura of mystery to the building.



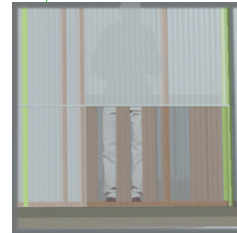
people entering



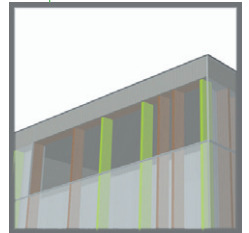
bicycle parking



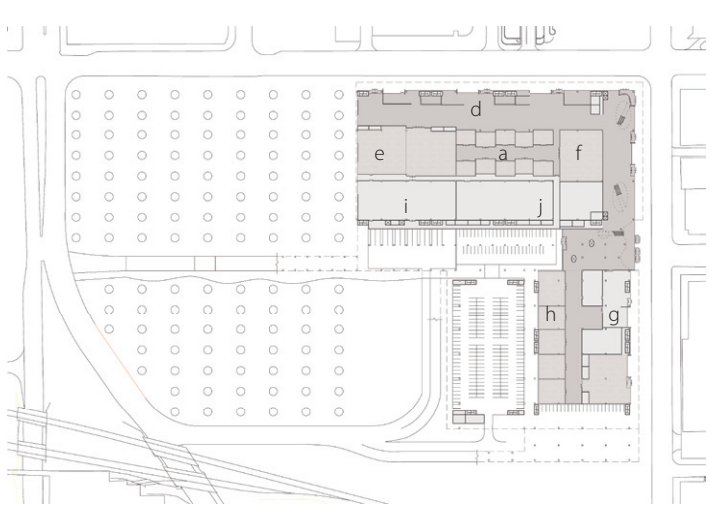
leg glimpse



clerestory



Those mystic hints are derived from a change in the transparency of the skin. The change in transparency allows for a number of glimpses. First of all, bikes parked in the bike storage space can be seen from the exterior when at a close distance. Similarly the entrance to the restroom on the back side can be seen through an aperture on the south side of the restroom. Through an opening beneath the sink, the legs of people using the washbasin can be seen slightly from the outside. The toilet room portion of the restroom has only clerestories and because of this it is understood that privacy is a concern. For users to, for the purpose of functionality, know that it is a restroom, the common restroom icons for male and female have been integrated into the paving on the trail in front of the restrooms. It too acts in two modes of a person's perception. On approach the section of trail in front of the restroom appears a different color. When the user gets closer and changes their perspective it becomes apparent that there are icons in the concrete.

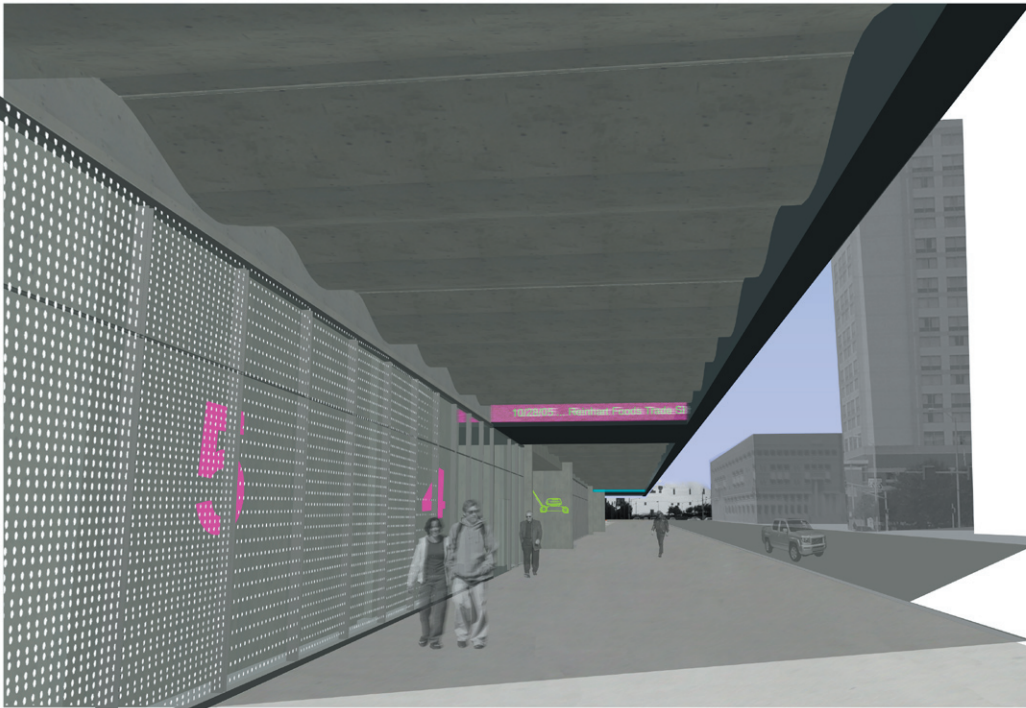


1

DESIGN EXPLORATION #2

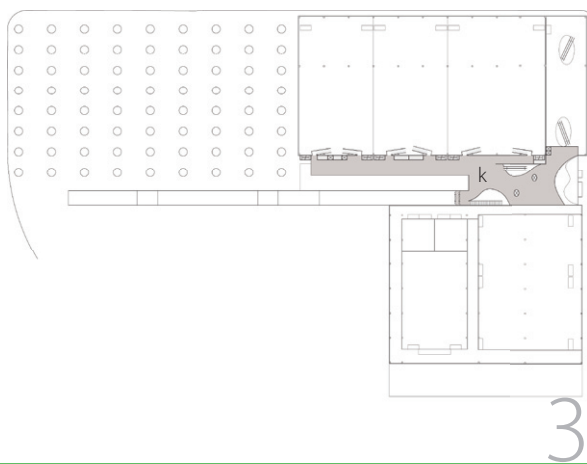
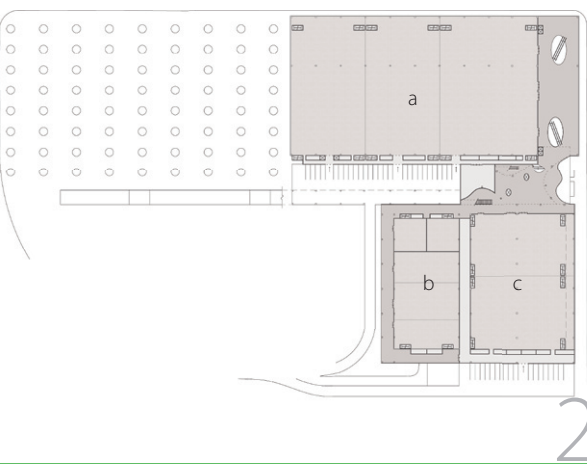
INDIANAPOLIS CONVENTION CENTER

The second design exploration explored a building with the opposite scale than that of the greenway restroom, a convention center. A convention center provides a vast surface area of skin to explore.

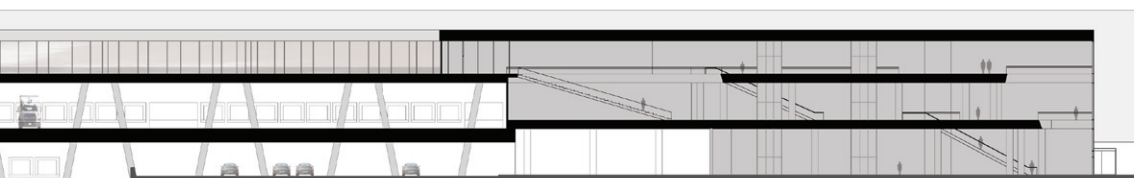
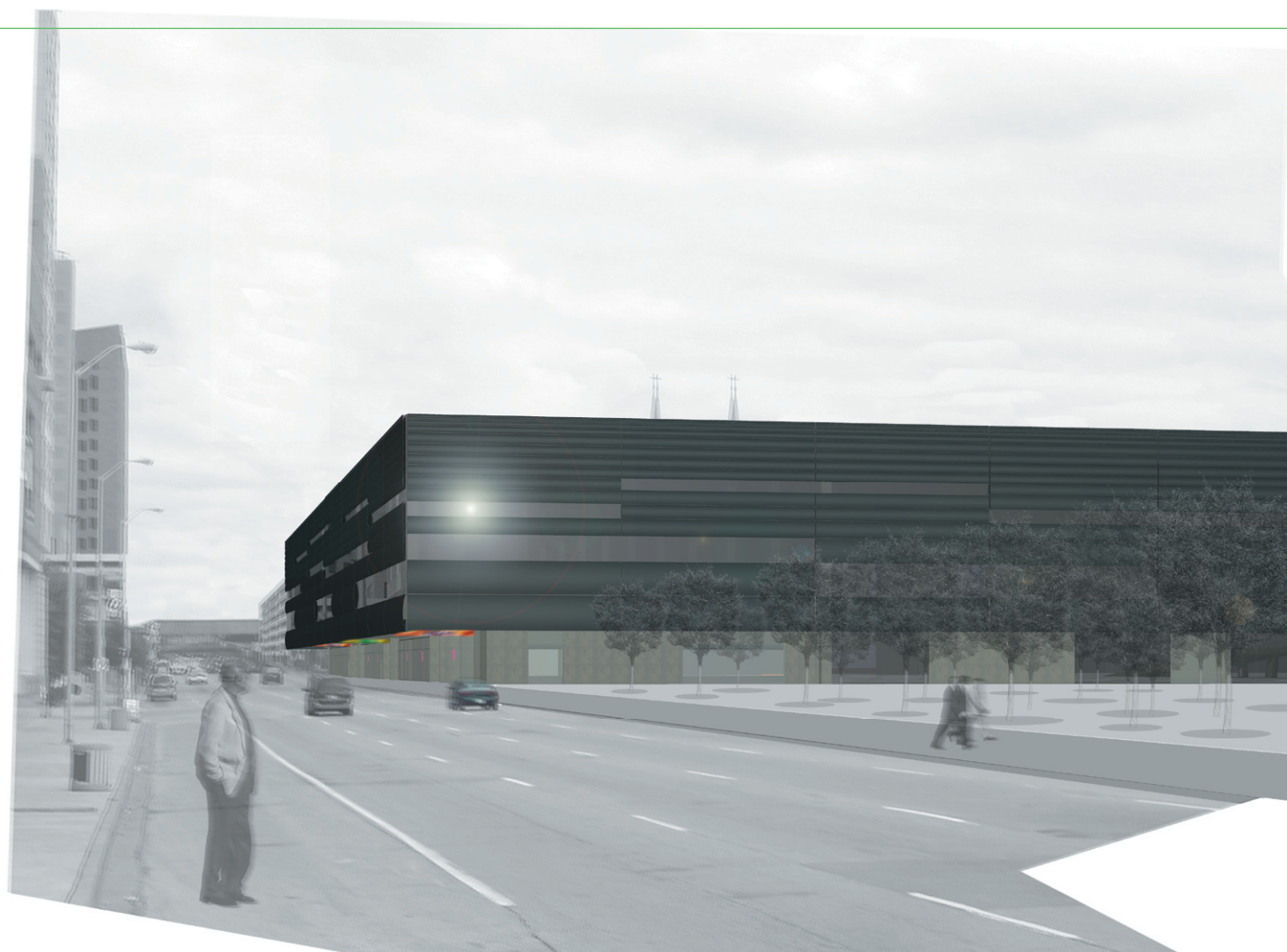


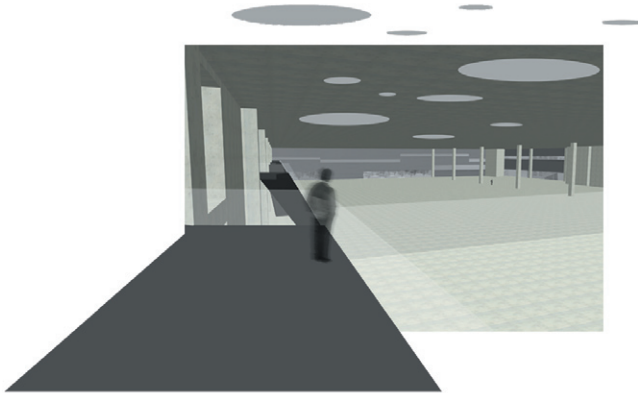
The convention center holistically is meant to be interpreted as and treated as a warehouse for the idea of "exhibiting." Two major warehouse exhibiting spaces become floating volumes and retain two different characters. They are elevated above a public street level with a unified character which unites the entire building. Holistically the architecture is perceived as scaleless objects elevated above an urban building experience at street level.





- a. exhibition
- b. ballroom
- c. exhibition
- d. streetfront/retail
- e. bosque pavilion
- f. main ballroom
- g. meeting
- h. parking
- i. kitchen
- j. mech.
- k. main exhibition lobby

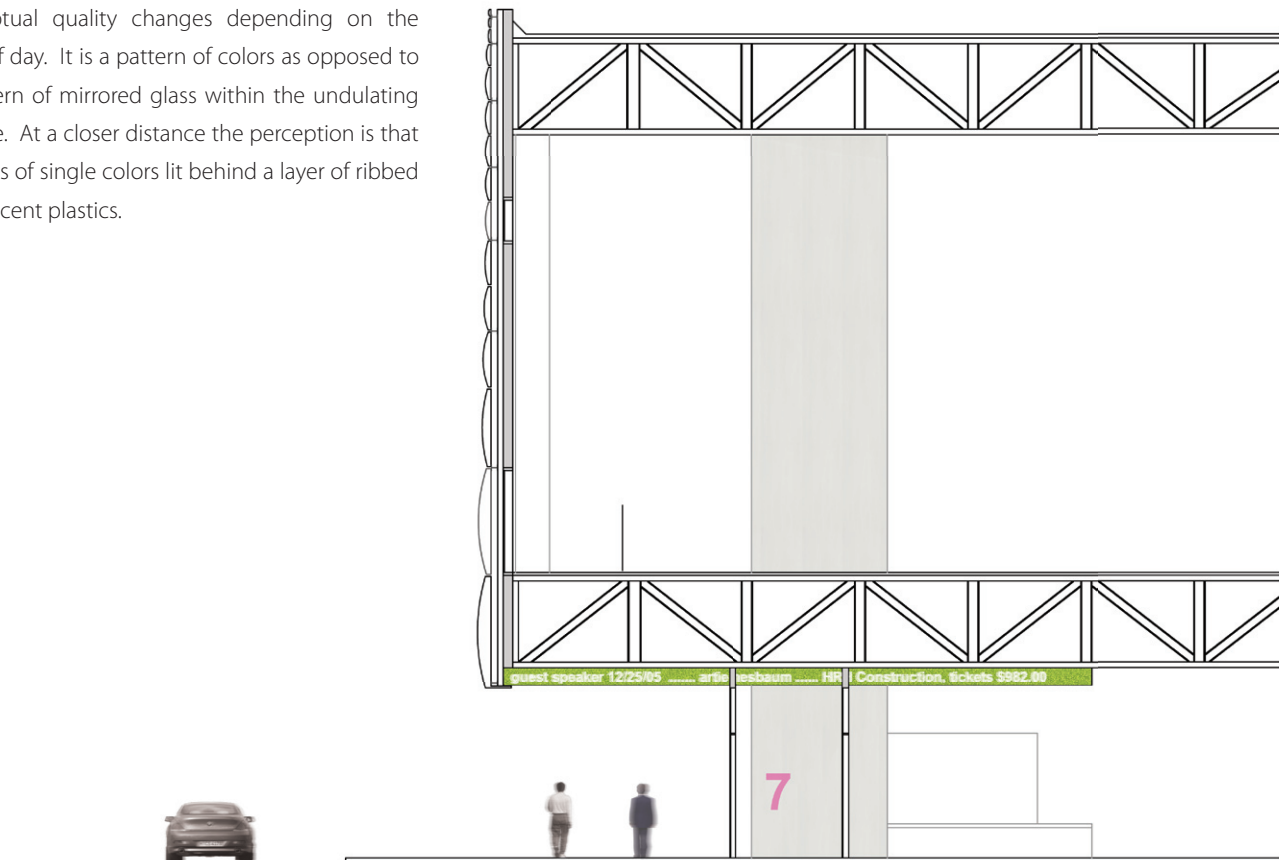
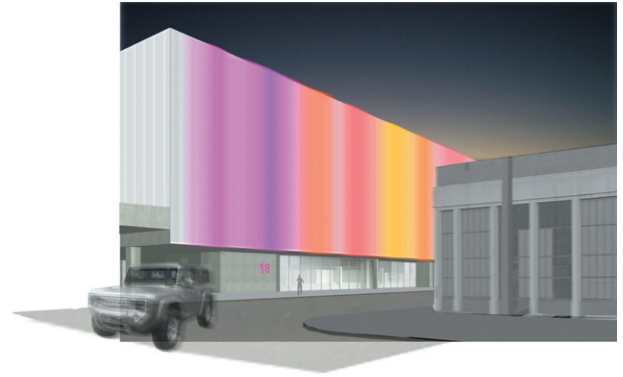




Similar to the transition zones [building skin] of inside to outside, the major penetrations in public spaces for transitions from one horizontal plane to another achieves similar undulating qualities. The cutouts in the floor plates and skylights for daylighting in the exhibition halls contrast the orthogonal geometry of the building form. The vertical movement spaces that are simply of functional necessity become simple elements treated in the most rational manner possible.



The base achieves a more conceptual undulation with a gradient of fritting on the street front glass. The intensity varies according to relationship to function inside. As intensity of function inside increases, so does the fritting intensity. As the user escapes into the underbelly of the volume the soffit undulates up and down the street front at a much more human scale. The breaks in the undulation become flat planes that extend into the interior at entrance zones. These areas become dynamic with scrolling LCD screens informing the public about information related to the events of the convention center. At this visual level the fritting becomes perceived as extremely pixilated fields of white. The smaller exhibition volume, also perceived as scaleless, is a glowing box of colors with a gradient over the distance of it. Its perceptual quality changes depending on the time of day. It is a pattern of colors as opposed to a pattern of mirrored glass within the undulating surface. At a closer distance the perception is that of areas of single colors lit behind a layer of ribbed translucent plastics.



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